608039

INDEXED

Y 13-14
(914)

MOOR BOARD

JAN 1914

Arrangement Plans for

Elco MOTOR BOATS

"You'll always be proud of your Elco"

Elco Motor Yachts
equipped with
Diesel or Gasoline Engines

The "IDEALIA" is the first American built Motor Yacht to be equipped with an engine burning Fuel Oil.

We are prepared to submit proposals for boats fitted with Diesel or Gasoline Engines: the designs to be furnished by ourselves or your architect, as you may prefer.

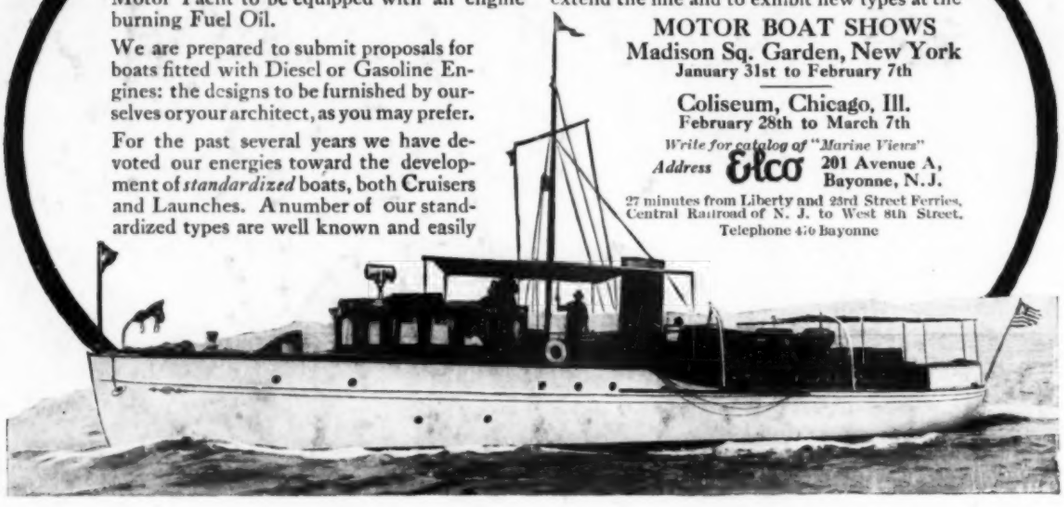
For the past several years we have devoted our energies toward the development of *standardized* boats, both Cruisers and Launches. A number of our standardized types are well known and easily recognized by the boating public. We plan to extend the line and to exhibit new types at the

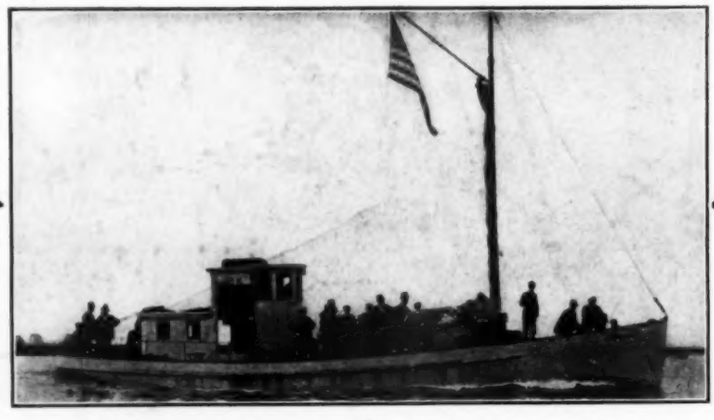
MOTOR BOAT SHOWS
Madison Sq. Garden, New York
January 31st to February 7th

Coliseum, Chicago, Ill.
February 28th to March 7th

Write for catalog of "Marine Views"
Address Elco **201 Avenue A, Bayonne, N.J.**

27 minutes from Liberty and 23rd Street Ferries, Central Railroad of N. J. to West 8th Street.
Telephone 476 Bayonne





Georgie M—
Party Fishing Boat.
50 H. P. Standard.

Martin Murray
(owner),
Long Beach, L. I.

Besides the money saved you the feeling of perfect dependability, perfect safety, which goes with

The Standard Engine

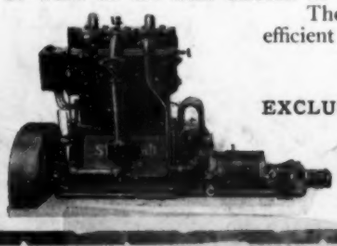
is priceless. The mind is free for work or pleasure.

Think what that means!

It is the plain simplicity of the STANDARD, attained without the sacrifice of necessary parts, which gives you this. Such simplicity is achieved only after years and years of experience and painstaking work. It proves the absolute correctness of design, shows complete development of the smallest detail.

This is how the STANDARD is practical; a simple, correct, smooth-running unit doing the greatest amount of work on the least amount of fuel and with lowest upkeep cost.

The many years of experience and work also enables us to give you the most efficient propeller for your boat.



Send data and let us advise about your boat.
Write for catalogue and prices.

EXCLUSIVE FEATURES:—Governor Control, Virgin Lubrication, Operative Ignition.
Back of the STANDARD guarantee is the

STANDARD MOTOR CONSTRUCTION COMPANY

178 WHITON STREET **JERSEY CITY, N. J.**

INDEXED

CONTENTS

MOTOR BOATING

THE NEW YORK PUBLIC LIBRARY 608039 ASTOR, LENOX AND TILDEN FOUNDATIONS R 1915 L

JANUARY 1914

Hydroplaning on the Atlantic Ocean.....Frontispiece
New Possibilities of Propulsion..... 3
Sixty-three Hundred Miles in a Motor Boat..... 6
One Year of the Flying Boat..... 8
Two- and Four-Cycle Motors Compared..... 10
Racing Here and Abroad..... 12
Tunnel Boats..... 13
A Diesel Boat for the Great Lakes..... 15
Helpful Hints for Motor Boatmen..... 16

New Motor Boats—

A 1914 Viking Boat..... 17
The 76-Foot Auxiliary Schooner, Fareeda..... 18
A Forty-four Footer for the Pacific Coast..... 19
A Seventy-five Footer with Clean, Unbroken Sheer..... 20
A Forty-four-Foot Gunning Motor Boat..... 21
A Trim Thirty-Foot Day Cruiser..... 22
A Husky Little Open Boat..... 22
Spring Maid, a Western Express..... 23
A Twin-Screw Southern Cruiser..... 24

Prize Contest in Questions and Answers—

The Best Cabin Arrangement..... 25
Lengthening Out the Boat..... 28
Electric Lighting on a Motor Boat..... 29

Motor Boats of Miquelon..... 31

Marine Motors—

Northwestern, Lockwood, Victor, Red Wing and Hall..... 32

Devices and Stunts..... 34
Among the Clubs..... 36
Letters from Motor Boating Readers..... 37
A. P. B. A. Racing Rules for 1914..... 39
New Things for the Motor Boatman..... 40
Nautical Expressions..... 42
Yard and Shop..... 43

January, 1914 — MOTOR BOATING — Vol. XIII, No. 1

THE NATIONAL MAGAZINE OF MOTOR BOATING

Entered as second-class matter at New York, N. Y., Post Office.

Copyright, 1913, by MoToR BoatinG

Published Monthly by New Publication Company, 119 West Fortieth Street, New York City

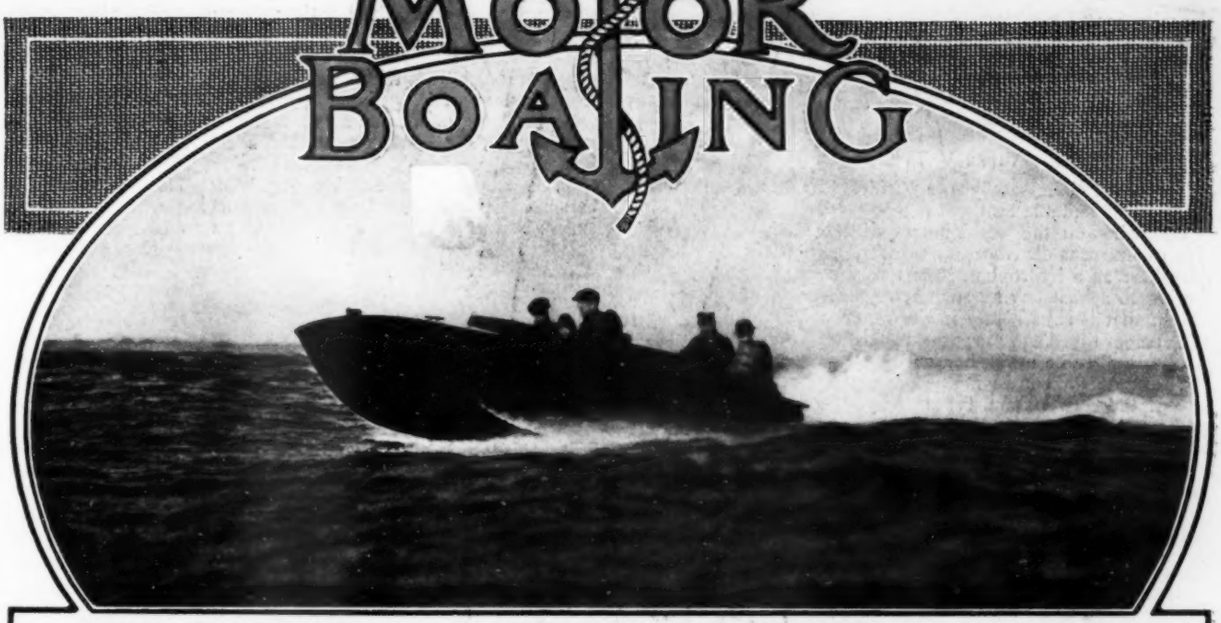
G. L. Willson, President — George von Utassy, Treasurer — C. J. Shearn, Secretary

Telephone: Bryant 8760. — Cable Address: Motoria

10 *cents a copy.* *Subscription, $1.00 a year* — European Agents: Saarbach's News Exchange, Mainz, Germany.

Hydroplaning in the Atlantic Ocean—A 20-ft. Viper V hydroplane making over 25 miles per hour in a rough sea off Boston.

MOTOR BOATING



THE NATIONAL MAGAZINE OF MOTOR BOATING

New Possibilities in Propulsion.

The Development and Perfection of the Surface Propeller with Some of Its Advantages. A Thoroughly Reliable and Seaworthy Speed Boat Suitable for Runabout Use.

By Albert Hickman,

Inventor of the Surface Propeller and the Sea Sled Boats.

THE three major claims for the surface propeller are as follows:

1. A reduction in the resistance of power boats traveling at speed, owing to the absence of underwater shafting, struts, and other appendages.

2. Total draught of water approximately one-half that of a screw-propeller boat of similar size and power.

3. Capability of traveling through heavy weed growths at speed, without the speed being materially affected.

Since these claims were made, the two latter have been fully proven and recognized. The first claim is a theoretical one and would be difficult to prove in practice, except with installations of extremely high power and light weight, when the result would become self-evident. Such installations have not yet been made.

Summing up the practical surface propeller advantages, then, in connection with any suitable type of hull, we find that no other sort of boat capable of any speed can run in such shoal water, and through heavy weed growths; and, in connection with the first claim, that of lower resistance and high efficiency at high speed, the results already shown in propeller slips and other data in connection with the highest-powered installations yet made have led a number of men who are in touch with the best technical opinion to consider the installation of surface propellers, in hulls of light weight and extremely high power, looking toward the attainment of higher speeds than have yet been reached in the development of motor boats.

Apart from the above three operating advantages of the surface propeller system, I made certain claims as to technical advantages in installations:

The absence of all shafting beneath the boat to be injured by running over submerged obstructions.

The fact that short, stout shafts were used instead of long shafts of small diameter, as in the screw-propeller system.

The fact that propeller bearings were carried rigidly in the structure of the hull, instead of at the end of the strut arm or shaft hanger outboard.

That if one engine was used, together with a geared transmission, only one-half the power of the engine would be transmitted through the gearing, instead of the entire power, as in the screw-propeller system.

If two engines were used, then instead of two gear boxes transmitting the entire power of both engines through long shafting, as in the screw-propeller system, we would have in the surface-propeller system, short shafts of ample diameter with an entire absence of all gear transmissions, the engines driving the propellers direct. This system would effect a most important saving, first, in installation cost, and second, through friction and unnecessary weights.

Improvement in facility of control by the use of the short-shaft installation, enabling the boat to be maneuvered and steered with greater rapidity and safety at speed than in any other installation possible.

Each one of the above claims has been demonstrated out in practice in various boats, and has been proven to be correct in all respects. So fully is this the case that we can present independent reports covering the continuous working of boats with such installations.

Messrs. Murray & Thegurtha Company, of South Boston, who are known as one of the oldest, most reliable and most conservative boat and engine firms in the country, have prepared a report for the Viper Company based on the result of their experience and careful observation of several surface propeller boats throughout the past season, and they state that, independent of the operating advantages first referred to above, the mechanical advantages alone are sufficient to justify

the adoption of this class of boat, within the range of its sizes and powers. In the conclusion of their report they say, "We have found that all the other important features already referred to have worked out in practice, and as far as we can see these boats stand in a class by themselves, superior to any other form of speed boat."

VIPER V TYPE HULL

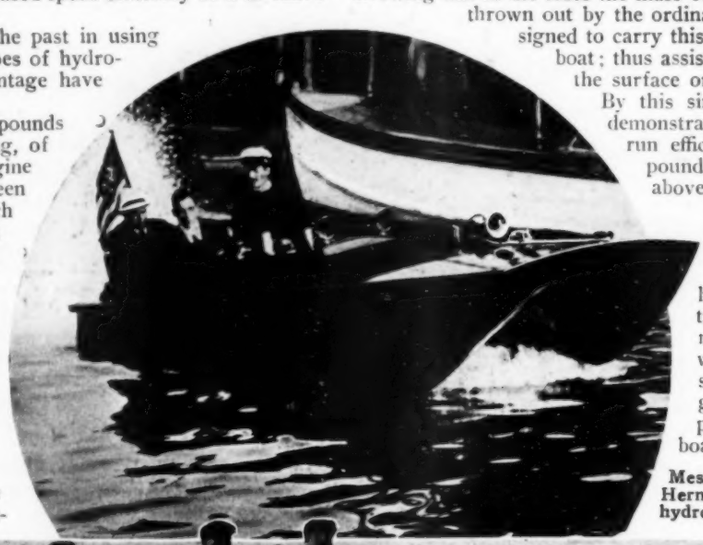
The above claims apply to a surface propeller installation in any type of suitable hull.

Following on the development of the surface propeller a type of hull was developed to work in connection with surface propellers as a hydroplane; the term being understood as referring to a boat having such relation between its power and weight that it rises bodily in the water with increasing speed, and enables the greatly increased speed efficiency of a so-called planing hull to be utilized.

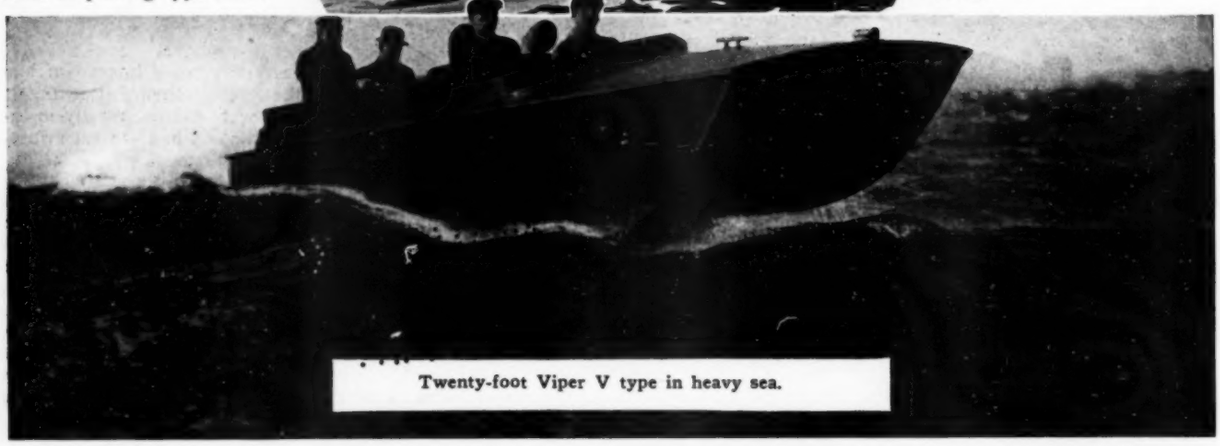
The main difficulties in the past in using any of the conventional types of hydroplanes to commercial advantage have been the following:

Low planing weight, 45 pounds to the horsepower, including, of course, weight of hull, engine equipment and crew, has been about the maximum at which these boats would work efficiently, necessitating the use of an especially light and strong and, therefore, expensive hull, together with a light and powerful motor, involving not only expense in this direction as well, but greater liability to breakdown.

Pounding in rough water: the construction of the hulls of planing type resulting in these boats pounding so severely in even moderately rough water as to be uncomfortable, and in many cases dangerous.



Messrs. Vincent Astor and Herman Oelrichs in a Viper V hydroplane.



Twenty-foot Viper V type in heavy sea.

Unseaworthiness under certain conditions of earlier types of hydroplane boats, owing to the fact that the water lines, or lines of immersion forward, were without exception *incurving* toward a vertical stem, resulting in the boat's "tripping" or planing toward the opposite side to which the boat may be inclined, when driven at speed in a seaway.

Though this trait is of less importance, the older type of hydroplane with incurving water lines forward throws water inboard in a seaway at low or moderate speeds, and in some cases even at high speeds.

The Viper V type hull was designed to obviate each of the above difficulties, and was as radical a departure from accepted practice as was the surface propeller. Briefly, the main characteristics of the hull are as follows:

The sides or topsides of the boat, instead of being thrown in toward the keel line at the bow, are continued forward practically holding their full width to the bow; the bow being wider than the stern. The bottom of the boat, instead of being of V'd, rounded or convex section, is of inverted V or concave section; the keel being higher than the angles of the bilge, with the depth of the inverted V sections decreasing toward the stern. These inverted V-bottom sections are so worked out toward the bow that the water lines, or lines of immersion forward, instead of being incurving toward the keel at the bow, are *outcurving* in relation to the keel going forward, no matter at what angle the boat may be inclined in relation to the surface of the water.

These three characteristics, parallel topsides, coupled with inverted V-bottom sections and outcurving water lines, are entirely novel principles as applied to hydroplane construction and operate in the following way, as relating to the four disadvantages referred to above in connection with the older types of hydroplane boat.

The inverted V-bottom sections of this boat, instead of throwing out at the sides the mass of spray—water and air—thrown out by the ordinary hydroplane, were designed to carry this water and air under the boat; thus assisting the boat in rising to the surface or planing.

By this simple device it has been demonstrated that these boats will run efficiently at weights of 70 pounds to the horsepower, or above; as high as 80 pounds to the horsepower having worked satisfactorily in contrast with the 45 pounds of the ordinary hydroplane. This means that a heavier hull and a motor of more ordinary weight may be used and still leave a planing margin ample to carry enough passengers to make the boat a commercial success.

The same feature of the Viper V-type hull that is responsible for the high planing weight is responsible for the practical elimination of the pounding; the second difficulty pointed out above in connection with the ordinary hydroplane, i. e., pounding in ordinarily rough water.

It has been finally demonstrated that it is not the angles of the inverted V-sections which are responsible for this lack of pounding, but the air cushion which is carried under the boat by the novel form of hull. The boat may virtually be said to ride on compressed air. This absence of pounding in the Viper V hull not only does away with the main danger of injury to the structure of the boat or the motor, but does away with the constant strain and stress felt by the passengers in traveling in other types of hydroplane in rough water.

Outcurving water lines forward in the Viper V type boat have resulted in the elimination of the possibility of tripping, referred to above as the third great difficulty in the utilization of earlier hydroplane hulls. Instead of the Viper V type hull planing to the opposite side to which the boat is inclined, this hull, owing to this inverted construction, must and does plane toward the side to which the boat is inclined; this feature act-

(*Continued on page 62*)

6,300 Miles in a Motor Boat

The boat was built by the author himself with the help of "all the boys."

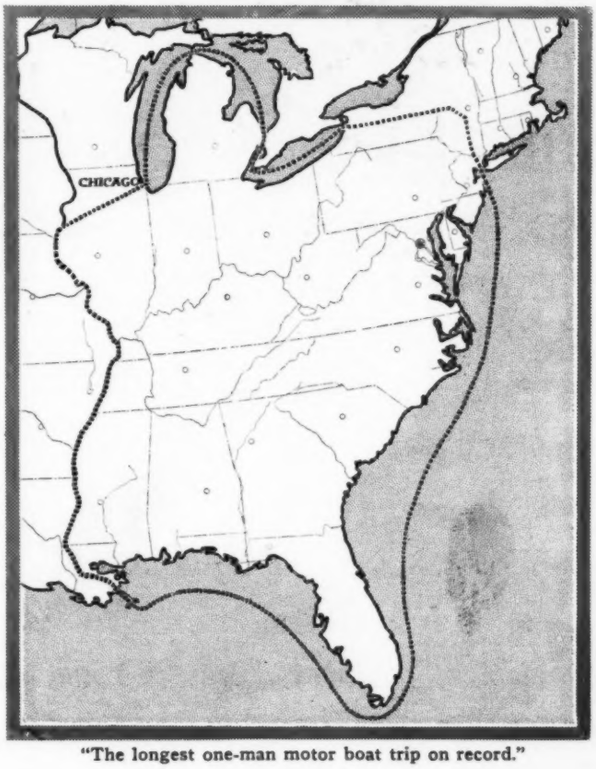
The Government's coast charts prevented us from getting "lost."

From Chicago, Down the Gulf, Around Florida, Up Mississippi, Across the Lakes and the Coast, Through the Home Again.

By Ralph M. Pierson.

I LEAN back in my chair. The work on my study table is forgotten as I fall to dreaming again of that never-to-be-forgotten six months afloat. Moving pictures of scenes, places and action focus themselves on the screen of my memory, flicker a moment, and then are crowded into oblivion again by the press of those succeeding. The warm, cosy room fades. The light at my elbow changes to a binnacle. I am at the wheel again in the midst of the wild, black turmoil of the storm. Involuntarily I steady myself against the violent rolling of the boat. The wind shrieks through the rigging and tears at the cockpit curtains; the maddened seas leap out of the blackness ahead and smash cruelly down on us. Huge wings of phosphorescent spray drive aft like a thousand hailstones, and I gasp for breath as I duck into it. The light of the binnacle glistens from dripping oilskins and faintly shows the straining curtains against the black terror of the night outside.

The picture fades and I see the pale blue waters of the Atlantic Ocean gently lapping the stones at my feet, while the bright, hot sun of the tropics bathes a coral island in its midday heat. Fred, with the pike pole is hooking huge, green cocoanuts from a palm tree overhead, and, as they drop, I am gathering them into piles to carry back to the boat where mother is waiting for the first taste of the fresh milk. I see him chop the first one clear in two with the ship's hatchet and I hear him swear impatiently because the milk runs out.



"The longest one-man motor boat trip on record."

The coral island changes to a wide sweep of salt marsh with the low, red mud banks of a narrow Georgia creek, still wet from the falling tide, and the marsh grass waving in the breeze. The boat is monotonously creeping along, northward now, when suddenly the stern wave begins piling up behind, showing shallow water, and before the reverse lever can get into action, she is scraping bottom and is aground. I can see the quick throw of the stern line, the propeller full speed reverse churning the muddy water into foam, the back-breaking push on the pike pole, till at last she gives and is free again.

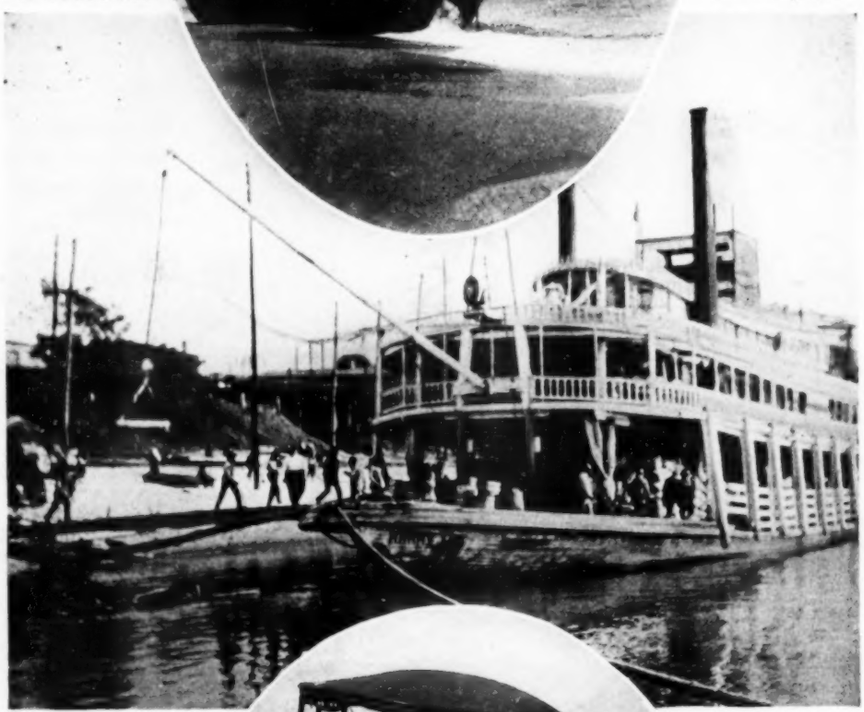
A jump of a thousand miles and we are passing under a railroad bridge out from the mouth of a river into a large, spreading bay, with the roll of the ocean coming in from the east. There is a gray, misty half rain in the air, and the clouds overhead are low and threatening. Powerful tugs, like bull-dogs with huge white bones in their teeth, hurry past us. To starboard a steamer, red-gray in the fog, is slowly, against the tide, picking her way among the shipping out to sea. Deep-throated whistles boom port

and starboard to each other and to the shriller whistles of the many tugs. Into the smoke and mist to the westward we are gazing intently, waiting for some expected shape to form itself into reality. At last we can make it out. Yes, there it is, standing out stronger and clearer every moment, the sight we have looked forward to for months, wondering if we would live to see it, the sight that has cheered countless of Americans—The Statue of Liberty.

The tumbling rock walls of the Hudson pass rapidly in review and change to the green, rolling hills and the straight, level banks of the Erie Canal. Now we are tied to a coal dock in Buffalo, waiting for better weather to try the lakes. Now we are pitching and pounding over the treacherous seas of Lake Erie forty miles from shore, and again the perspiration breaks out all over me as I remember the discovery of the leak and the water all over the cabin floor and the spray flying from the engine flywheel. Again I am bailing for our lives and wondering whether I can make a raft in time if the worst happens, or whether we will have to go down into the cold water with the ship.

When we saw things like this we thought how our craft was like an egg-shell in comparison.

The scene changes. I see friendly life savers making us welcome at their lonely station, the children bringing fresh milk and new picked garden stuff for presents. Again, the black clouds are banking up ahead and the freshening wind is throwing the spray higher and higher, as we run, like a frightened rabbit, for the lee of that low green island off the port bow. And as we gain its shelter, I am again picking my way inshore, over a boulder strewn bottom, till we gently rub against the beach and wade ashore to explore a deserted island.



There was plenty of this sort of thing to be seen along the Mississippi.

Now the red tower of a lighthouse, with its winking light partly dimmed by approaching dawn, is dropping astern, and again I am tense and alert as the thick fog blanket settles around us blotting out the light and the distant shore line to the north. I am shutting the cabin hatch to subdue the noise of the engine, and, trusting to compass and chart I am steering W ½ S into nothing, listening intently for the warning signal of some steamer which imagination constantly pictures looming out of the fog to run us down.

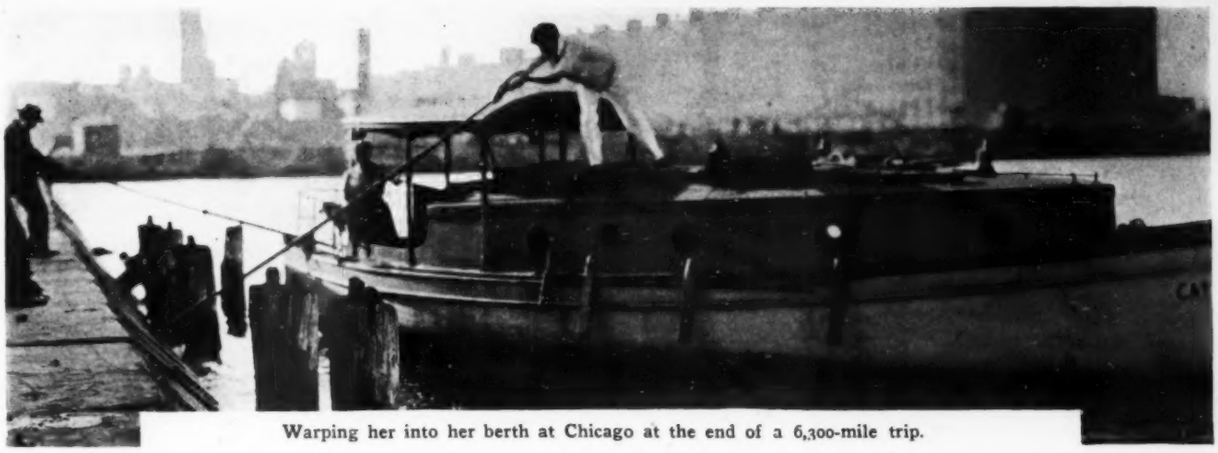
Just like a regular sailor.

Now follow the long, grinding, all-day runs over gently heaving, sunlit seas, past strange shore lines and islands, each headland, each point, each harbor foretold by the chart in front of me and eagerly watched for and recognized, till at last, with a tumult of emotion, we see the dear old Chicago light grow from nothing into reality, and, rounding the breakwater at the river's mouth, we are HOME.

I have been home from my trip many months as I write this, but the wonder of it has not worn off nor the memory of it dimmed. I had not supposed it would be of particular interest to other people, but I find that the same love of the outdoors and of boats and of water which impelled me to make this trip, also impels many of my friends to dream of it and to wish that they could take it, too. And many of those to whom it seems most alluring are the ones who do not own a boat and who have had no experience on the water. So if I can dream and ramble again over those six thousand miles of changing scenery, and paint with clumsy words some of the pictures that change a map from a sheet of flat paper to a living scene, a printed coast line to a long stretch of foaming beach broken by the battered hulk of a four-master thrown half out of water by the sullen power of those long green rollers, then I may be able to feed their imagination to a point where they, too, can see something of these pictures and gain a pleasure therefrom which they would otherwise miss.

Various people have various ways of spending a vacation. There are those who camp in the big woods. There are those who walk cross country. There are those who travel in trains and try to overlook the innumerable annoyances of time tables, hotels, porters and the constant dress parade. There are those who motor and get fresh air but no exercise. Then there are the few (and I never could understand why they were so few) who travel and live in boats.

For years I had dreamed of owning and living in a boat. Beyond that Elysium Field my vision could not range. To walk the deck of my own boat, to run the engine, to steer, to navigate strange waters, and then to be lulled to sleep at night by the gentle, heaving roll of some sheltered harbor—that would be the supreme joy of all earthly joys. And now that the dream has come and passed, giving place to other interests, still does the pull of it ring true.



Warping her into her berth at Chicago at the end of a 6,300-mile trip.

To live on a boat, to cruise from place to place as fancy directs, to explore strange waters and strange lands, to meet storms and calms, sun and rain protected only by good, sound seven-eighths-inch cypress planking, to tie up to a deserted island on a wild and rugged coast miles from the nearest human settlement, to explore it, to fish and hunt for your own dinner, then, as night falls over the waters, to be snug and cozy and at home in the little cabin, still does this seem to me to give the keenest pleasure of all the different pleasures of the great outdoors.

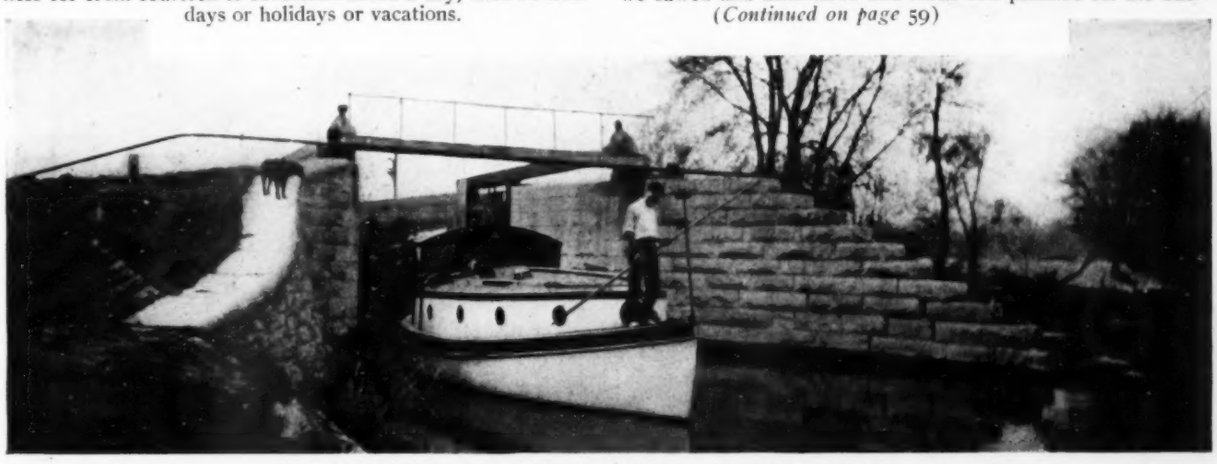
For seven years I had been tied hand and foot to the business for from fourteen to seventeen hours a day, with no Sundays or holidays or vacations.

But in the seventh year came the breaking of the bonds when I signed the first check for the knock-down hull of a 35-foot cruising motor boat. The simple signing of that check gave life a new and brighter aspect. No longer was the dull monotony of the store unrelieved. I could plan and think and dream of that boat. There were all the arrangements of the interior to decide on and a long list of equipment to choose. Then when the crates were delivered to the shed on the vacant lot next the store, there was the keen excitement of the actual work to begin. Stealing every odd moment from the business we sawed and hammered and fitted and planned till the busi-

(*Continued on page* 59)

At left—"Hooking" cocoanuts with the pike pole.

At right—The open Atlantic on the way north.



Getting through a lock on the old Illinois and Michigan canal.

One Year of the

At Hammondsport, on Lake Keuka. Here Glenn Curtiss has his training camp, and instruction in

One of the U. S. Navy's flying boats.

How a Remarkable Machine Has Been Invented, Built Demons Some of the Prominent Ones Who Have Taken

By Lyman

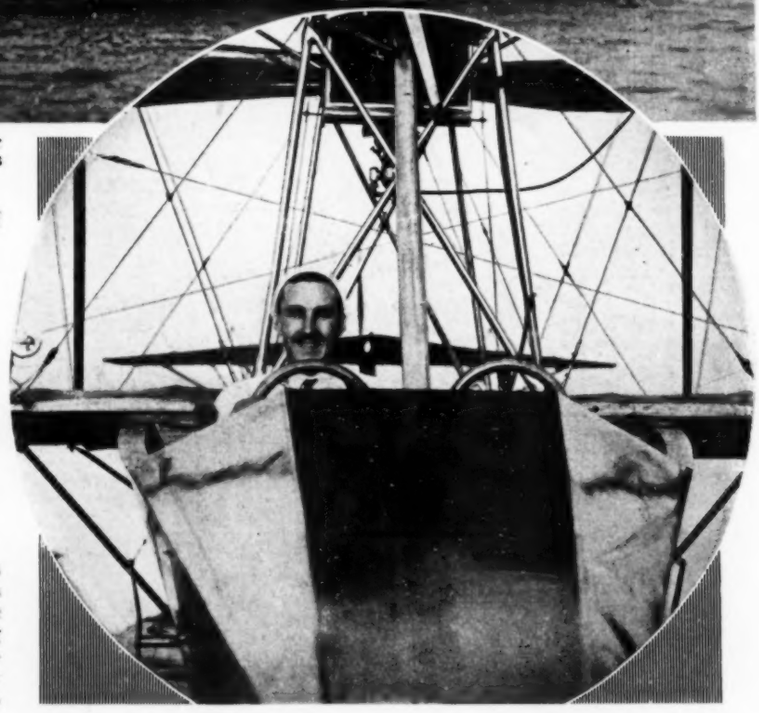
IT seems incredible that in little more than one short year so remarkable a machine as the flying boat should have been invented, built, demonstrated, widely adopted, and almost immediately utilized. And developed! The flying boat has accomplished so many things since Mr. Glenn H. Curtiss flew the first one on Lake Keuka a year ago last July, I almost forget the amount of development work that has been done since that first machine was turned out.

This year has produced a constant succession of surprises; not the surprises of the experimental laboratory, which might be of interest chiefly to those watching the scientific development of aviation, but surprises of accomplishment that have filled columns of newspaper space.

The first big surprise to the general public came early in the year when Mr. Harold F. McCormick, of Chicago, son-in-law of John D. Rockefeller, and head of the International Harvester Company, announced that he intended to use a flying boat for commuting between his home and Lake Forrest and his office in Chicago. From the news columns this item found its way into the editorials. They gave the prospective aerial commuter much amusing advice, but were less humorous in their prognostications. Mr. McCormick has commuted steadily through the summer; hitting a mile-a-minute clip between home and office, and finding exhilaration and comfort in the new mode of travel.

He did not long occupy the field alone, however, for his order was quickly duplicated by Mr. George von Utassy of New York, Mr. J. B. R. Verplanck of Fishkill, Mr. G. M. Heckscher of New York, and Mr. L. A. Vilas of Chicago. All

While this boat appears to be resting on the water its weight is actually carried by the wings. It runs fifty to sixty miles an hour in this way.



He won the 1000-mile cruise from Chicago to Detroit via the Straits of Mackinac. Beckwith Havens in Mr. Verplanck's boat.

Flying Boat

the operation of the machines is given to large classes. A winter camp is located at San Diego, Cal.

Curtiss flying boats used by the Russian Navy.

trated, Adopted and Utilized In a Little More Than Twelve Months. It Up and What They Have Done with It.

J. Seely.

people seemed to want to know was that the flying boat compared reasonably in safety with the fast motor car or the motor boat. Probably a number of them took it for granted that Mr. McCormick would not have taken up the machine had he not been convinced "beyond reasonable doubt" that the flying boat was at least fairly safe. The experiences of these later purchasers helped to convince others of the success of the flying boat.

Mr. von Utassy established his flying boat at Port Washington on Long Island, and with Mr. J. A. D. McCurdy has been flying over Long Island Sound all summer, when the weather was pleasant enough for outdoor sports. He has introduced the flying boat to many of the men prominent in the motor boat world, among them Mr. J. Stuart Blackton, who is said to have developed a real enthusiasm for the new craft.

The latest type. In a year the flying boat has developed from a pontoon to a highly finished V-bottom mahogany speed boat.

Shooting ducks from a flying boat. Mr. E. K. Jaquith of Chicago getting into difficulties with the game warden.

Mr. Verplanck went further afield with his flying boat. He not only demonstrated the superior speed of the water-flier, but also its safety and stamina as a distance cruiser. With Mr. Beckwith Havens he flew from Chicago to Detroit, via the Straits of Mackinac, covering the more than a thousand miles at an average speed of 60 m. p. h., and doing it without discomfort or damage to the machine. From Detroit, Havens flew by easy stages to Toledo, Cleveland, Put-in-Bay and Buffalo. Thence the Verplanck boat was shipped to Albany and Messrs. Havens and Verplanck made a one-stop flight down the Hudson, through New York, to South Beach, Staten Island. They participated in the decennial celebration of the first flight in a mechanically operated machine, then flew back up the Hudson to Mr. Verplanck's place at Fishkill. Though it has seen thousands of miles of cruising and weathered a number of violent storms, Mr.

(Continued on page 62)

Weight, Revolutions an

The Weight Per Horsepower Depending Upon the Revolutions Two and Four Cycle Weights Compared; Also One, Two, Per I Three

Number of Two-Cycle Models on the Market.

	HEAVY-DUTY	MEDIUM-DUTY	LIGHT-WEIGHT
One cylinder	100	175	43
Two "	81	154	61
Three "	31	68	39
Four "	20	35	32
Six "	...	2	20

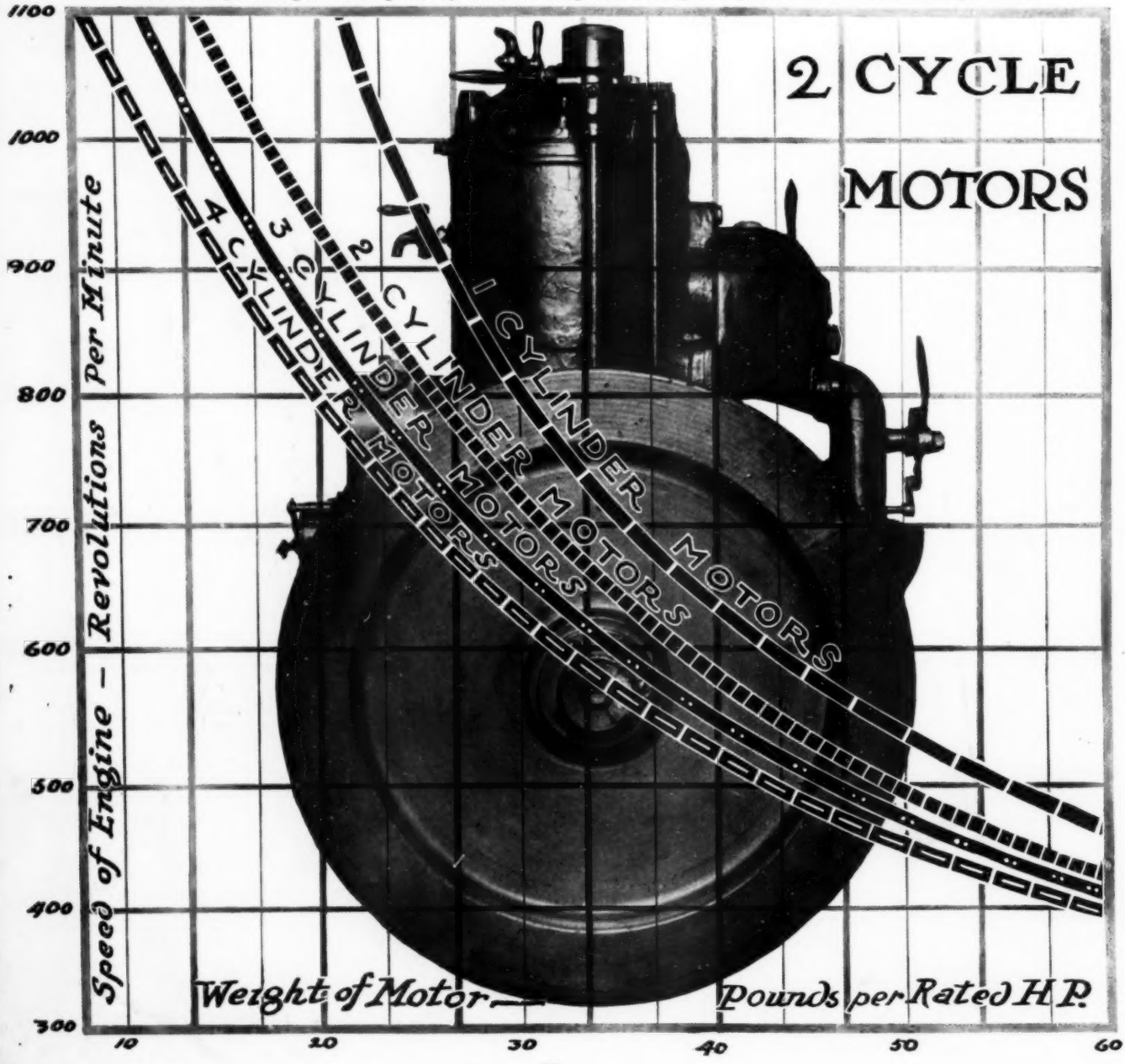
MARINE MOTORS to-day are made in many sizes, both two and four-cycle. There is a correct size motor for every requirement, whether it be a detachable motor to go over the stern of a row boat or skiff; a 1½-h.p. size for a dinghy; motors for runabouts, cruisers, speed boats, hydroplanes—in fact, everything up to a big auxiliary of several hundred feet in length. There is hardly a gap in the range of models on the market, from the miniature 1-h.p. size up to the mammoth engine of two hundred horsepower. Even beyond this power rating, we find numerous models, although the steps in horsepower ratings are naturally somewhat further apart.

Likewise marine motors are built for various speeds—some for heavy-duty work, others for medium-duty, and still others for high-speed, light-weight work. In some cases—but not often—these are somewhat interchangeable. Sometimes we hear of a medium-duty model being changed over slightly and put to the task of high speed work, and the results are often satisfactory. As would also a heavy-duty model be, if it were required to do medium-duty work at times. But very, very seldom, if ever, do we find a light-weight, high-speed model, which will work satisfactorily for any length of time, if called upon to do heavy-duty work, or even take the place of a motor which was primarily designed for medium duty. Each has its particular work cut out for it to do and do well, and to try to work at beyond these limits is only inviting trouble.

In almost 100% of cases American marine motors are designed with the above fundamental principle in view, and, as a result, the range of models which have been developed is very complete and founded on the best practice, as well as theoretical considerations.

Why is it that some 10-h.p. motors develop their power at 500 r.p.m., others at 750 r.p.m., and still others at 1,000 r.p.m.? And also why is it that one motor of 4½" bore and 5" stroke turns over only 450 revolutions per minute, while another of exactly the same dimensions will turn the same propeller at perhaps 900

Chart showing the weight of average two-cycle motors designed to develop their power at various revolutions per minute.



and Horsepower Output.

Per Minute at Which the Motor Was Designed to Operate. Three, Four and Six Cylinder Machine Weights Shown.

r.p.m.? Simply because they are designed to do just that. The two chief factors which govern r.p.m., other things being equal, of course, are the weight of the moving parts and size of the various ports and passages. Compression, compression space, etc., enter in, to be sure to some extent, but may be neglected for an elementary consideration.

After the ports have been correctly designed to give the correct speed to the inflowing and outflowing gases, the moving parts have to be designed of a size correct for the particular speed desired, for it takes a decidedly different size crankshaft to transmit 10 h.p. at 400 r.p.m. than it does to transmit 10 h.p. at 1,000 r.p.m. The same is equally true of the connecting rods, pistons, wrist pins, etc., so one will see that a happy balance must be struck between weight and speed of the motor.

Nearly every one knows that a 2-cylinder, 25-h.p. motor, developing its power at 1,000 r.p.m. weighs less than a motor of the same power, but which develops its power at 400 or 500 r.p.m. But just how much less one of the former type should weigh is another matter. Also what difference there is in the weight of a motor of the same power and speed, but having three, four or six cylinders instead of two, is also a point which may confuse many. Another point of discussion might be the difference between similar two and four-cycle models.

On these two pages we have plotted all of this data, worked out as the average of some 1,700 models on the market, and the results are very consistent, and almost what one would expect. The horizontal ordinates represent the weight of the various types of motors in units of pounds per rated horsepower, while the vertical ordinates represent the average revolutions per minute.

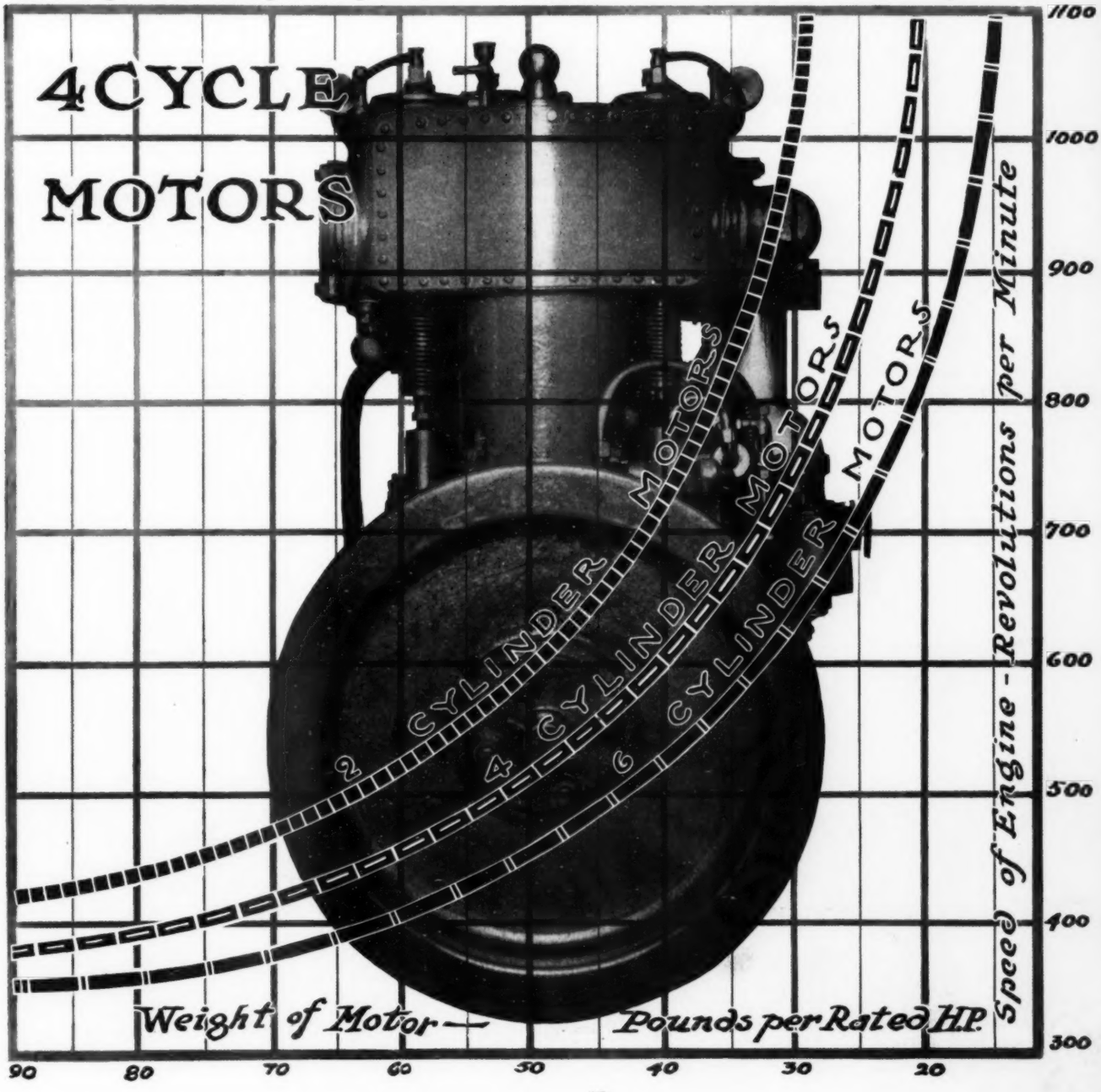
The half-tone illustrations are end views of typical motors, those on the left being of the two-cycle type, and a four-cycle on the right.

From the curves will be readily seen the proportionate reduction in average weight as the revolutions go up, and comparing the chart on page 10 with that on this page shows the difference in two and four-cycle practice.

Number of Four-Cycle Models on the Market.

	HEAVY-DUTY	MEDIUM-DUTY	LIGHT-WEIGHT
One cylinder	53	31	5
Two "	121	67	4
Three "	79	23	..
Four "	112	88	79
Six "	71	33	31

Chart showing the variation in weight of average four-cycle motors of two, four and six cylinders of various revolutions per minute.



Racing Here and Abroad Compared.

Impressions Gained During the Last Competition for the Harmsworth Trophy. What Requisites are Necessary Before the Cup Can Be Brought Back to America.

By Count Casimir S. Mankowski,
Owner and Driver of Ankle Deep.

IN LOOKING back on the experiences I encountered since I started on the trip abroad to contend for the British International Motor Boat Trophy, I am amazed at the great dearth of knowledge regarding hydroplanes. Many a foolish question was put to me by persons who, in any other line of sport, would possess far more knowledge than they did of motor boating.

To show the ignorance of some people, I was asked how long it took to drive Ankle Deep from New York to Southampton. Another person asked whether I slept on board Ankle Deep over nights between races, and another inquired if I slept in Ankle Deep's saloon while she was on board the Minnewaska on the trip across. One man asked me where I kept the boat's wings. He supposed she was a hydro-aeroplane.

I've been more or less interested in motor boats ever since they started to become popular in this country, and when hydroplanes were first introduced I developed a desire for one that was capable of going at a speed of fifty miles an hour. I'll admit that I thought I was figuring on something that seemed to be an impossibility, and I suppose there are many who doubt whether I have obtained what I was after. I realized that no displacement boat would obtain a speed of fifty miles an hour, but I do not think the greatest speed of hydroplanes has as yet been reached. However, I'm satisfied that Ankle Deep is good for the fifty miles or better, and I'm willing to race against any other so-called fifty-miler for a cup or merely for the love of the sport, over a certified course, not too far from New York City.

It took me three years to decide who I would have design my boat and what make of motors I would use. I'm glad I took my time.

Going back three years, I am reminded that I owned a 16-foot displacement boat, Gem, and although she was capable of making but thirteen miles an hour, she gave the impression of going at double her speed, and won one race of six miles by 1¼ miles from her nearest competitor. The cup was worth more than the boat.

The first ride I ever had in a speedy motor boat was on the day I took Ankle Deep from the Staten Island Yard to Morris Heights by way of the Upper Bay and Hudson River. That memorable trip afforded me my first insight into the thrills and possibilities of the sport. That was two days before the Gold Cup Race of 1912, and Ankle Deep was shipped to Clayton the night before the day of the race, being put in the St. Lawrence only three hours before the starting gun was fired.

In the first race of the Gold Cup Series, in 1912, I upset. It was my first race in a real high-speed craft, and as Ankle Deep did the McGinty act with surpassing alacrity, I went with her for a distance that seemed enormous, and had time to imagine it was my last experience in the sport. However, I came up all right, but the boat remained on the bottom for three wet days and three wetter nights.

The next contests in which Ankle Deep was started were the elimination events on Huntington Bay, and then the International Races. I had always felt that the bronze shafts were too springy, and the key-ways not machined out as they should be, but I was assured that there was nothing wrong. However, one of the shafts twisted off in the first of the International Races, and then again in that much more important event—the last and deciding race—the same thing happened.

I was accused of driving my boat at too great a speed when I had such a comfortable lead over Maple Leaf IV in the final lap. However, such was not the case. As I neared the first outer mark off Eaton's Point on the last leg, I cut down my motor speed from 1,200 to less than a thousand revolutions, and at no time from then till the break occurred did I increase the speed.

The planing angle of the boat was, without doubt, chiefly responsible for the accident, as has been demonstrated by subsequent tests. Before she was changed she did not plane down to her level, and there was a great strain on her after bearings. Now that is entirely eliminated, as is shown by the fact that she went through the Gold Cup Races of 1913, as well as the International Races abroad, to say nothing of having traveled hundreds of miles in trials, without any trouble whatsoever, and without any appreciable wear on her after bearings. She has steel shafts now.

When the question of selecting a team to compete abroad for the trophy this year came up, I felt confident that Maple Leaf IV was faster than Ankle Deep and did not care to take my boat abroad, as it seemed a senseless thing to do. Also the original date for the first race abroad would not permit me to race for the Gold Cup on the St. Lawrence, which I had given my promise to the Lake George Regatta Association to do, a year earlier.

However, the dates of the Harmsworth Events were postponed, and I promised to make up a team if they could get no other, and I finally decided to go as a duty, and I'm well pleased that I did so. The results, as far as Ankle Deep's performances are concerned, were all that could be expected. More, in fact, and while I did not lift the Trophy, I convinced British sportsmen that an American boat was dependable.

Far too little credit has before been given the mechanicians on fast boats for the parts they play in the performances of the craft. I want to say that no small degree of Ankle Deep's consistency and surprising speed was due to the never-tiring energy and intelligence of my engineer, Frank Grenon. He was to Ankle Deep all that the best trainer could be to the finest horse in preparation for some great race.

I cannot excuse my defeat abroad on the grounds of fuel or lubricating oil. It was simply a question of Maple Leaf IV's superior speed.

Possibly we threw something of a scare into the foreign camps when Ankle Deep made her first appearance on the water. All of the others had their troubles in

(Continued on page 60)

Count Mankowski.

Ankle Deep during one of the 1913 Harmsworth races in England, showing her planing qualities. This boat is a 32-foot Crane hydroplane, powered with two 8-cylinder, 150 h.p. Sterling engines.

The Tunnel Stern.

An Efficient Method of Reducing the Draft of Screw Propelled Boats for Shoal Draft Work. A Few Simple Points Which Must Be Considered to Insure the Success of the Design.

By Lawrence B. Chapman.

BEFORE taking up a consideration of the design of tunnel boats, let us first turn our attention to the effects of shallow water on resistance and speed, for it is in such water, of course, that a boat of this type will most likely be operated. As a boat, running at a uniform speed, goes into shallow water the waves accompanying it become longer and higher and the flow of water around the hull is impeded because of the proximity of the bottom. This check in the flow of water, together with the increased wave height, causes an increase in resistance, and as the water becomes shallower the resistance increases rapidly. This would lead one to believe that a shallow draft boat is subject to abnormal resistance, but in the extreme shallow water, in which a tunnel boat would be used, new conditions are set up which cause a decrease in the resistance.

When the depth equals $(\text{speed})^2 \div 10$ the maximum resistance is reached. At this depth the train of waves accompanying the boat becomes a single wave known as a "solitary wave." If the boat passes into shallower water at the same speed, or if the speed is increased at this depth, the boat runs away from the solitary wave and has practically no waves following it. The power falls off quite rapidly and large increases in speed are obtained at small increases in power. This phenomenon has often been observed when destroyers run into shallow water. The minimum depth at which no increase in resistance is felt is expressed by the following formula:

$$\frac{10 \times \text{draft} \times \text{speed}}{\sqrt{\text{Length}}}$$

From the foregoing it will be seen that shallow draft boats are easily driven. This, in a way, offsets some of the losses that occur in the tunnel, as will be seen later. The reader should distinctly understand that this will not always occur. The boat may be so short or the bottom so close that new conditions will be set up. However, this phenomenon of the solitary wave has been often observed in tunnel boats and oftentimes leads one unacquainted with it to believe the tunnel more efficient than the ordinary screw.

The tunnel boat, as the reader probably knows, is a boat with an aperture or "tunnel" built into the boat aft, in which an ordinary screw propeller works. Figure 1 shows the stern of a boat and the contour of the tunnel; figure 2 shows a section aft, taken through the tunnel. This tunnel is so constructed that a boat can have a propeller whose diameter is nearly twice the draft of the boat. The propeller is placed at the highest point of this tunnel as is shown in figure 1. By reference to figure 1 it will be seen that half of the tunnel is above the waterline and therefore full of air. As the engine is started the lower part of propeller turns in solid water, and as the boat starts ahead the upper parts of the blades force the air out of the tunnel and it is almost immediately filled with water, so that the whole of the wheel works in solid water. Of course there is an increased resistance caused by the water acting on the inclined portion of the tunnel aft of the propeller, but this will be considered later. By this means it will be seen that large propellers and considerable power can be used with shallow draft. If the hull is well designed the center line of the shaft can be above the waterline, thus allowing, for example, a 30″ propeller in a boat drawing only 12″ of water. It is also possible so to design the tunnel and propeller as to have the propeller entirely above the bottom of the keel.

This is of great advantage, as in extremely shallow water the boat will take ground and in no case will there be any danger of striking the propeller. If desired, two tunnels can be built, thereby using twin screws. If the draft is very small, and for constructive reasons the tunnel cannot be made deep, tandem screws, two on the same shaft, can be fitted. This has often been made use of, but care must be taken to keep the two screws a good distance apart.

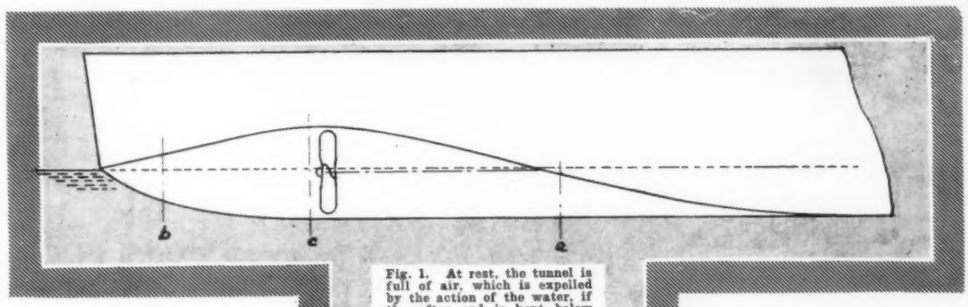


Fig. 1. At rest, the tunnel is full of air, which is expelled by the action of the water, if the after end is kept below the surface when starting.

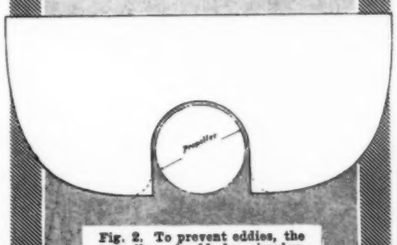


Fig. 2. To prevent eddies, the propeller should be circular, section of the tunnel at the with very little clearance.

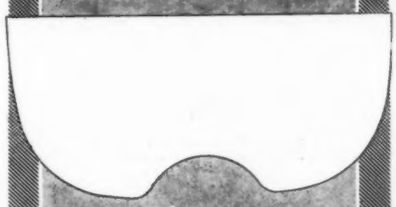


Fig. 3. The semi-tunnel is sometimes used when very shallow draft is not required.

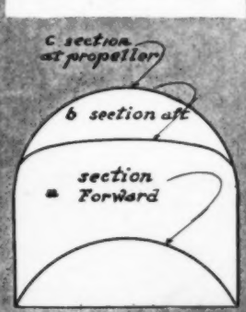


Fig. 4. Sections taken at the stations marked in Fig. 1, showing how the tunnel is flattened aft to parallel the waterline.

In designing boats of this type the hull and tunnel must be designed with the proper relation one to the other. The hull forward of the propeller must be so shaped that there is a clean flow of water into the tunnel. The whole action of the tunnel consists in keeping the air out. If air is allowed to get into the region of low pressure forward of the propeller the tunnel will quickly fill with air and absolute failure will result. When the tunnel is once cleared of air in starting it must be kept clear until the boat stops. In order to accomplish this the hull forward of and side of tunnel must be made sufficiently broad.

In the forward part of the tunnel there is a resistance caused by the change in the path of the stream lines, but this can be practically eliminated by giving the tunnel a long, easy sweep into the hull. This is shown by the contour line in figure 1. Aft there is an increased resistance, as mentioned, caused by the water striking the inclined portion of the tunnel. For this reason the aft part of the tunnel should be as nearly horizontal as possible. This, however, means an increase in draft. In regard to this point it should be remembered that the larger the tunnel the more the draft will have to be increased to float the same weight. From figure 1 it can be seen how the race from the propeller has to be forced down and under the stern. For this reason the tunnel should not be extended any deeper aft than necessary. The best way is to bring the top line of tunnel down to the waterline aft (figure 1). This allows the water to escape at the earliest possible moment. Later on a modification of the tunnel will be given, showing a great improvement in this respect. From the foregoing it is seen that the best shape of stern is the "torpedo stern," terminating in a flat wide waterline and transom stern. This covers the tunnel well forward and on the sides and makes the most convenient stern for terminating the tunnel. Besides this the "torpedo stern" gives the best form for a shallow draft hull. A form of stern as shown in figure 3 may be adopted, but as this leaves part of the propeller below the keel line, it is far better to adopt the one shown in figures 1 and 2. A flat bottom should be adopted in any case, as this section gives the maximum displacement on the minimum draft.

Next we come to the shape of the tunnel itself. Already I have pointed out the best

fore and aft practice. Figure 4 shows three sections through a tunnel, (*a*) being a section forward, (*b*) a section at the highest point, and (*c*) a section aft just forward of the end. See figure 1. These sections represent the best practice. Section (*c*) shows how the aft end of the tunnel is flattened out on top so that the tunnel ends in a line parellel to the water aft. The upper part of the tunnel in the way of the propeller should be a semi-circle in section so as to allow the propeller to turn freely without causing eddies. A rectangular section can be used, as will be seen later, but eddies will form and cause poor propeller action. The propeller should be located at the highest point of the tunnel and the clearance between the blade tips and tunnel kept small—an inch to an inch and a half is sufficient. If too much clearance is left eddies will form and the uniform column of water will be broken. Beside this a large clearance means an unnecessarily deep tunnel. Figure 2 shows the propeller circle dotted. Forward of the highest point the same radius should be kept, but gradually dropping the line of centers. By the time section (*a*), figure 4, is reached a new radius will have to be used, the tunnel gradually fairing into the hull. Aft, the sections begin to flatten on top, as shown in (*c*), figure 4. With regard to the sides, the tunnel can be carried straight down, as shown in figure 2, or rounded, as shown by the dotted lines.

Shallow tunnels, as shown in figure 3, are sometimes built and sometimes are merely a bump, as it were, in the planking. These, however, are hardly worth the extra work they involve and need no special attention here.

One serious drawback to this type of boat is that change of draft or trim seriously interfere with the tunnel. A trim will either immerse the stern aft, causing extra work, forcing the water out, or lift the stern clear of the water, causing the aft end of the tunnel to be open to the atmosphere, Any change in draft will also cause the same results. Fortunately, however, the pleasure craft is not influenced by these conditions, and if once brought to the designed waterline no further attention need be given to it. To those who use a tunnel boat for commercial purposes draft is a point that has to be looked into, for change of load means change of draft. Generally, the boat is designed to trim light, as in figure 1, and any increase in load lowers the aft end of the tunnel.

Yarrow has devised a flap which is very useful where change of draft is a concern. It is also very useful in any tunnel boat. Figures 5 (*a*) and (*b*) illustrates clearly its action. The aft end of the tunnel is sealed by an inclined flap as shown by figure 5 (*a*). The tunnel must be sealed from the outside air when starting, as already explained, or the propeller cannot force the air out. Experience has shown, however, that once the boat is under way the aft end of the tunnel can be open, as the sternward rush of the water out of the tunnel will keep the air from passing in. This is where Yarrow's hinged flap has its value, for, as soon as the boat is under way the flap is raised, as shown in 5 (*b*), and the inclined surface, which was a source of resistance, is removed. This also is a great help in change of draft or trim, for the flap can always be adjusted so as to close the aft end of the tunnel in starting and then raised while running. Experiments have shown that there is considerable saving in power with this device.

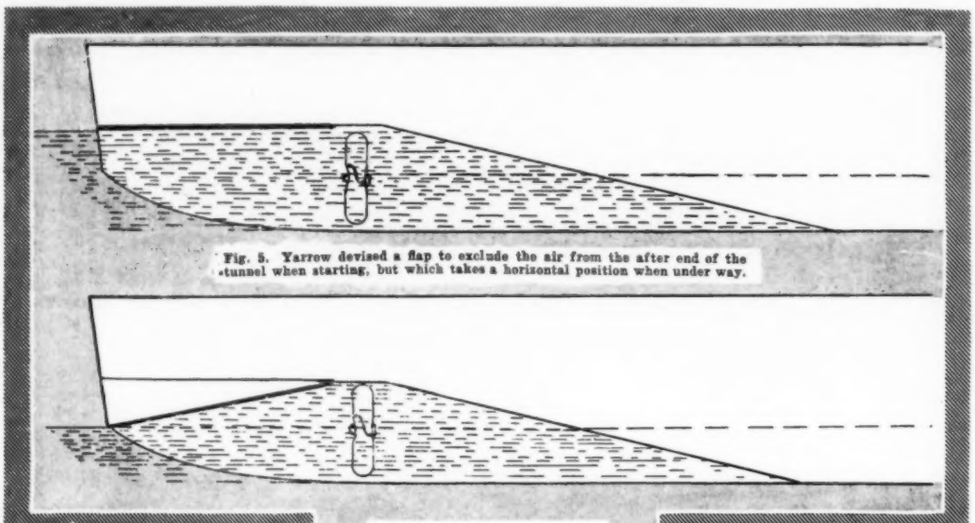


Fig. 5. Yarrow devised a flap to exclude the air from the after end of the tunnel when starting, but which takes a horizontal position when under way.

Fig. 5-a. Showing position of flap and water at time of starting.

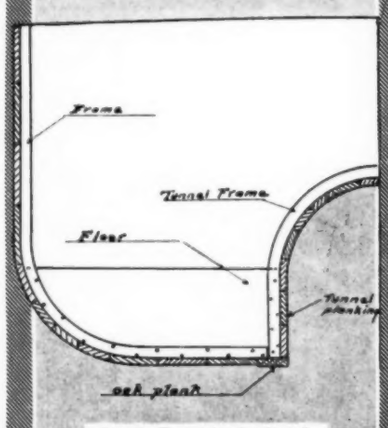


Fig. 6. To construct a tunnel in this manner is a difficult job.

The same effect can be partially brought about by designing a boat with aft end of the tunnel well above the waterline and then trimming the boat by the stern in starting, so as to seal the tunnel. In practice it has been found that the aft part of the tunnel may be opened 6" to 8" above the normal water level without danger of air entering. This, of course, only applies to a boat under way, for the tunnel must be sealed in starting. Caution should also be observed in not raising the center line of the shaft too high above the waterline, or the tunnel may not clear of air.

The rudder should always be fitted so as to get the full race of the propeller. Common practice is to fit it either in the tunnel aft of the propeller or on the transom. Where two tunnels and twin screws are used, two rudders should be fitted. Those who design their boats should bear in mind that a tunnel means loss in displacement and the sections aft must be fuller to make up this loss. Another point to be

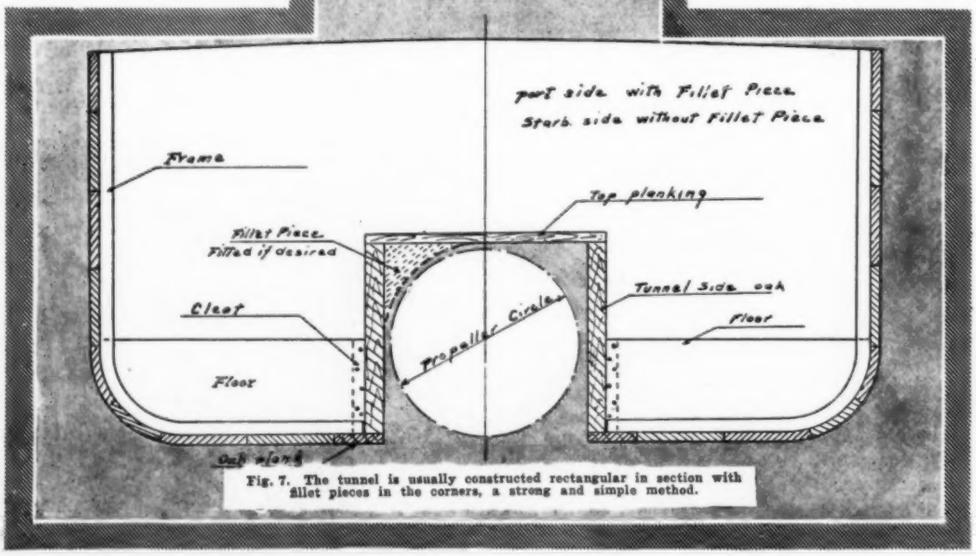
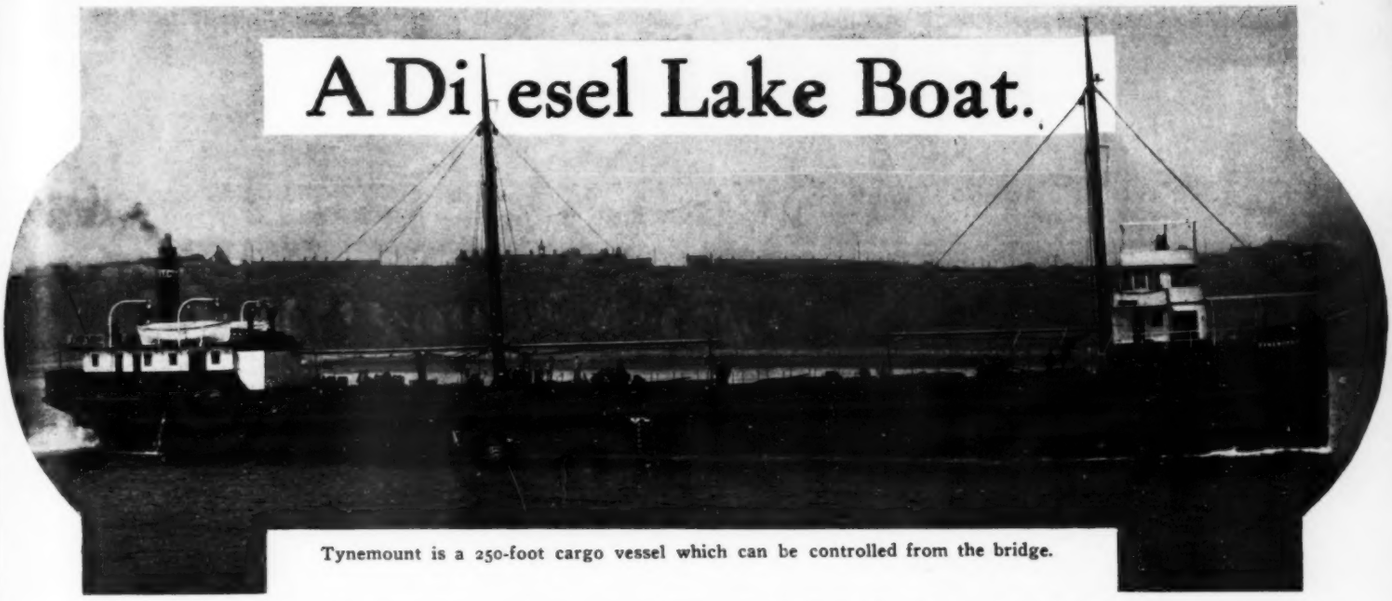


Fig. 7. The tunnel is usually constructed rectangular in section with fillet pieces in the corners, a strong and simple method.

(*Continued on page 62.*)

A Diesel Lake Boat.



Tynemount is a 250-foot cargo vessel which can be controlled from the bridge.

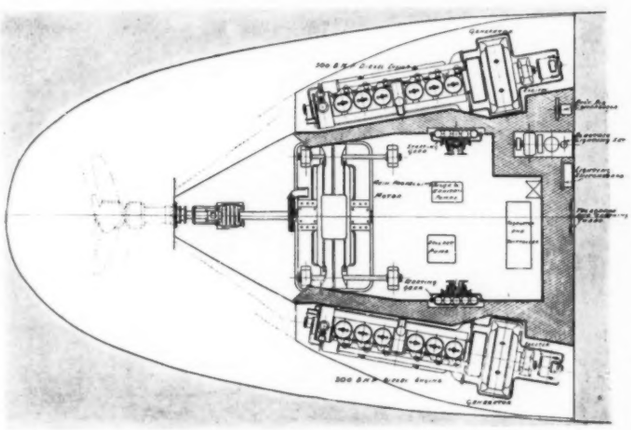
FEW craft recently constructed have greater interest than Tynemount, a new motor ship for the Montreal Transportation Company, which has recently passed her preliminary trials in Scotland, and which, after running public trials, will proceed across the Atlantic to take up her duties on the canals and Great Lakes of North America. She is particularly interesting by reason of the electrical transmission gear which takes up the Diesel engine drive instead of the power being directly applied to the propeller. The adoption of this system allows the navigator on the bridge to have complete control, when necessary, of the speed of the ship, apart from the usual telegraphs to the engineers, and the operation is by a single lever. Naturally, this arrangement will be most valuable for canal navigation; but it hardly tends for economy, as a considerable percentage of power is absorbed by the electrical transmission, while the first cost must be high. Another feature is that the power of the two separate engines can be combined, or used separately, to drive one propeller.

Tynemount is a steel ship, built by Swan, Hunter & Wigham Richardson, to the order of the Electrical Marine Propulsion Syndicate, the concern developing the transmission system. Her two main Diesel engines were constructed by Mirrlees, Bickerton & Day, while the electrical gear was made by Mavor & Coulson, to the design of Mr. H. A. Mavor. The principal dimensions of the ship are: Length, 250 feet; beam, 42½ feet; moulded depth, 19 feet; deadweight capacity, 2,400 tons; number of engines, 2; cylinders, 12; propeller, 1; total of engine power, 600 b.h.p.; total of propeller shaft power, 500 b.h.p.

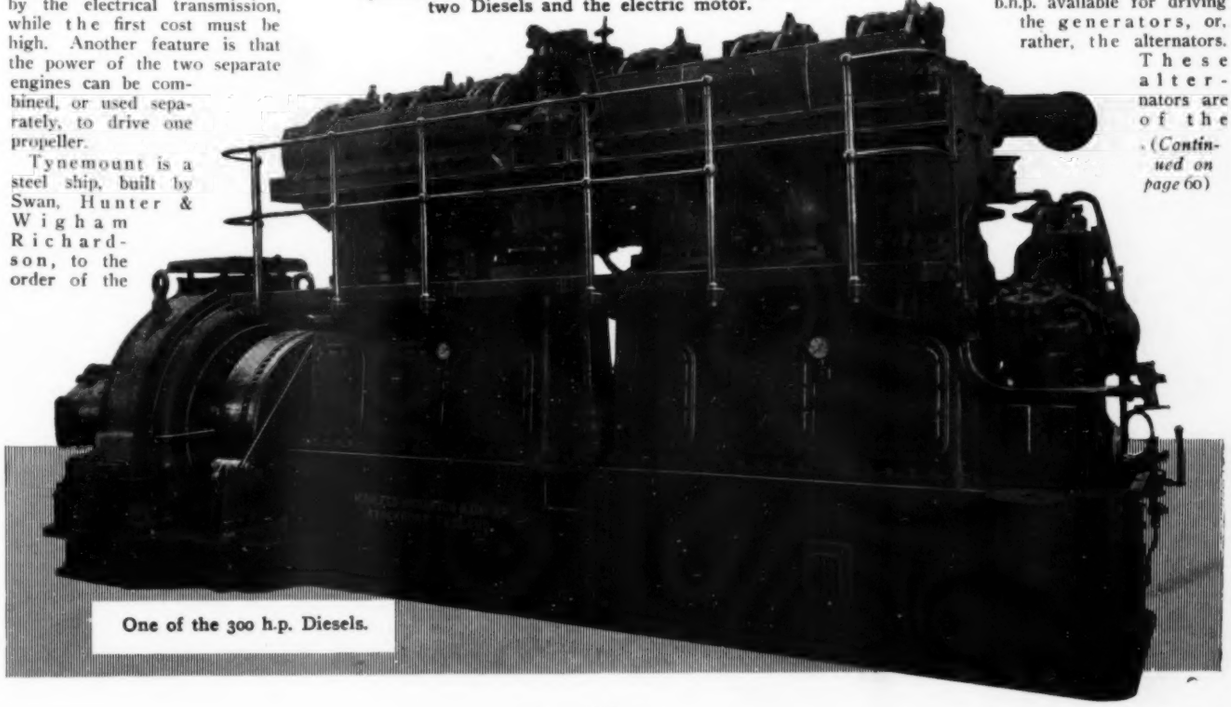
She is purely a cargo boat, and there are three holds and also complete accommodation for the officers and crew. Fuel is carried in the double bottom of the hull and in tanks on deck, with service tanks in the engine-room. All the auxiliary machinery is steam-driven, and for generating the steam there are two oil-fired Cochran donkey boilers.

Both the Diesel oil motors are of the high-speed, non-reversible, four-stroke enclosed type, and each has six cylinders, 12" bore by 13½" stroke, and at 400 r.p.m. develops 300 b.h.p., so that there is 600 b.h.p. available for driving the generators, or, rather, the alternators. These alternators are of the

(*Continued on page 60*)



Tynemount's engine-room, showing the disposition of the two Diesels and the electric motor.



One of the 300 h.p. Diesels.

Helpful - Hints For Motor Boatmen

Protection for the Magneto.

Magnetos for boat use should be entirely enclosed to protect them from spray and rain. Rubber cloth will answer for temporary use, but a more carefully arranged covering is advisable.

* * *

Spark Plugs.

Spark plugs should be protected from wet by rubber covers. A short piece of ordinary garden hose arranged so that one end may be closed around the conducting cable makes a good cover.

* * *

Acetylene Lights.

When lights are from acetylene gas produced by a generator, the generator should be placed where vibration from the motor will keep the carbide shaking somewhat to get bright and even lights.

* * *

Extra Fuel Cans a Source of Danger.

Extra gasoline cans of fuel are extremely dangerous in a motor boat. There are many ways that the gasoline may be spilled into the boat, and it then becomes a source of peril that is hard to get rid of.

* * *

Dry Dry Cells.

Dry cells should be kept dry. The least moisture of the pasteboard coverings will destroy the output of current. "Stockings" made of short sections of an old automobile inner tube of right size make the best coverings for dry cells.

* * *

To Keep Sight Feed Tubes Clean.

The glass tubes through which the oil drips in sight-feed lubricators frequently become so coated with dirt that it is almost impossible to tell whether the oil is flowing or not. A good way to keep these tubes transparent is to immerse them in melted paraffin, after having thoroughly cleaned them.

* * *

To Keep Boats Neat in Dirty Water.

For boats that are used in dirty water it is a good plan to have the waterline — bottom paint — extend a few inches above the water. It has been found in cruising on Lake Michigan that while the white hulls of the other boats got black and greasy, the dirt did not show on the dark bottom paint.

* * *

Tides.

A phenomenon not universally understood is that there are three waves or swellings to each tide, and that during the intervals between each wave the water may, for a few moments, run backward, at a flow sufficient to point the buoy the wrong way. When cruising, it is well to know the time of actual high water to avoid being confused by this.

* * *

Fog.

When caught offshore without a compass, with a fog settling down, head the boat for the place you wish to go to, and then tie a fishline to the forward staff at a height sufficient to let it trail astern in the water without touching the boat. So long as the line trails directly behind you will know that you are maintaining a straight course, except for vagaries of the current, but should it swing to one side it is a sign that you are starting to describe a circle.

* * *

Sculling as a Last Resort.

While, of course, it is an unusual occurrence, small open boats have been known to break down, and their operators have found themselves hard put to it to reach shore with an oar or a floor plank as a paddle. To these unfortunates, the art of sculling is recommended. It is not easy to learn to scull, but once one has obtained the knack it is surprising how rapidly even a moderately heavy boat can be propelled through the water by means of the single oar.

Winter Hints.

An ordinary foot warmer that uses carbon blocks for fuel makes a useful device for keeping the engine warm on a cold day when it is left out of action for any length of time.

A hot-water bottle of rubber filled with boiling hot water will warm up a carbureter so that the engine will start easily.

In winter weather the lubricating oil should be somewhat thinner than in summer. Ordinary oil mixed with one-sixth its bulk of kerosene will do for severe cold weather.

* * *

Care of the Ignition Circuit.

One of the most common sources or irregular action of gasoline engines is imperfect electric connections in the ignition current path. Small finger screws that are usually provided will not remain snug under the stress of constant vibration, and then the vibration of the loose connection will result in irregular firing. As far as possible, all electric connections should be soldered. Short-circuiting by contact with moisture-covered wood or other material can only be avoided by wrapping well with adhesive tape.

* * *

The Pump.

One of the most important small parts of a boat motor is the pump. As a rule, these pumps have a very short stroke, and for that reason the action of the piston must be almost perfect. If the draw is diminished by leakage, there will be a small or no amount of water sent through the cooling chamber of the motor, and the inside surfaces of the cylinders will soon become rough from overheating, and the engine will act badly or not at all. Great care should be used to keep the pump up to its full standard of efficiency.

* * *

Self-Bailing Cockpits.

A so-called self-bailing cockpit, in which the cockpit flooring is only five or six inches above the waterline, will often prove to be quite the reverse of self-bailing if any excess equipment is carried aboard, or if the boat is heeling over slightly with a strong wind abeam. At such times there will be an intermittent geyser in one of the scuppers and the flooring will never be dry. To be actually self-bailing, the cockpit floor should be twelve inches above the waterline, and the scuppers should be at least two inches inside diameter instead of the one-inch affairs so frequently put in.

* * *

Testing Valve Springs.

In replacing broken valve springs, it is important to have the new spring no stronger or no weaker than the old springs remaining on the engine. A fair idea of the respective strengths of the springs may be obtained by testing them singly between the fingers, but a surer way is to place the new one and one of the old ones end to end and compress the two together. If a small iron bar is run through the center of the springs they may be kept from jumping away, while a washer placed between the two will keep them from overlapping. Obviously, in making a test of this kind, the stronger spring will be the one which has compressed the lesser, and if the two compress equally they will be of the same strength.

* * *

Providing a Place for the Boat Hook.

On the average small motor boat the boat hook is usually "always in the way." After having been used, it is thrown down somewhere and when wanted again it can not be found—or else some one stumbles over it and gets red in the face, saying complimentary things about boat hooks and things in general.

A good way to have the boat hook always handy is to put a small upright piece of wood with a notch in it at each end of the cabin roof. By having the notches cut deep, the pole will stay in place in any kind of a sea, and will be out of the way and yet ready for instant use. This may seem a measley bit of advice, but once tried it will show its good points.

* * *

It Is Mistaken Economy

To loosen the vibrators on a coil until they consume only half an ampere. True, the batteries will last longer, the vibrator points will not burn up as quickly, and the engine will run on half an ampere, but it will run in a half-hearted, don't-care way. Batteries are intended to be used up, while every one expects an engine to do its best work. This it will not do unless it is getting a good, hot spark, and so, unless one cares to install a magneto he would better screw his vibrators down until they are taking at least 9/10 of an ampere, carry a few spare batteries and vibrator points, and for the comfort of all concerned resign himself to the slightly higher cost of such a procedure.

* * *

Increasing the Efficiency of the Two-Cycle Engine.

In the action of a two-cycle engine there is an interval when the charge of gas from the crankcase box partly blows through the carbureter and escapes, diminishing the efficiency of the motor to some extent, and reducing the quickness of the ignition. This is due to the intake port not closing entirely before the charge from the crankcase is liberated. This may be easily discovered by holding a piece of soft paper under the air inlet of the carbureter, and the puff of gas backward will blow the paper out, while the suction of the motor will draw it inward. The efficiency of the motor, and the quick and reliable starting, may be improved by putting a small and light shutter in the air intake opening of the carbureter which will open freely to the suction, but will drop back by gravity and prevent the outward puff.

* * *

Courtesy On the Water.

In no other line of sport or business is the helpful and friendly hand extended as on the water, though one occasionally comes across some misplaced landlubber who would rather see you sink that deviate from his course to lend you a little gas to get home on. No sermons or exhortations can reform this exception to the general rule, but a word can be addressed to that other sort of person who, for one fancied reason or another, refuses help when he is really in need of it. Just the hint that he lays himself open to being classed with the aforementioned misplaced landlubber should be enough to make him mend his ways, but if this hint doesn't cure him he'll have to wait until the day comes when his own offer of help to a stranger is spurned. By the time he's got through cussing the independent one out for a narrow-minded crab who is afraid he'll have to pay for the services offered, the light will shine and he'll see himself as others see him.

* * *

Taking the "Fire" Out of Backfire.

A gasoline engine is very apt to backfire when starting and also when slowed down too much. If this backfire is sharp and connects with gas in the vicinity of the engine, possibly on top of the bilge water, the result may be disastrous. Since backfires come from the air intake of carbureter it is easy to avoid danger by running a pipe from this air intake into the cockpit. Have the air intake mouth threaded on the outside, and lead a light pipe out through the cabin partition, turning end of pipe down immediately outside of partition to keep out water. Use pipe with a capacity of about twice the carbureter intake, and do not make sharp bends, which are likely to retard the rush of air. With these two precautions, no difference will be found in mixture or running of engine. With this device, backfires will be heard but not seen, except that a heavy one may send a suggestion of blue smoke out the end of the pipe if it is short.

New Motor Boats

A 1914 Viking Boat.

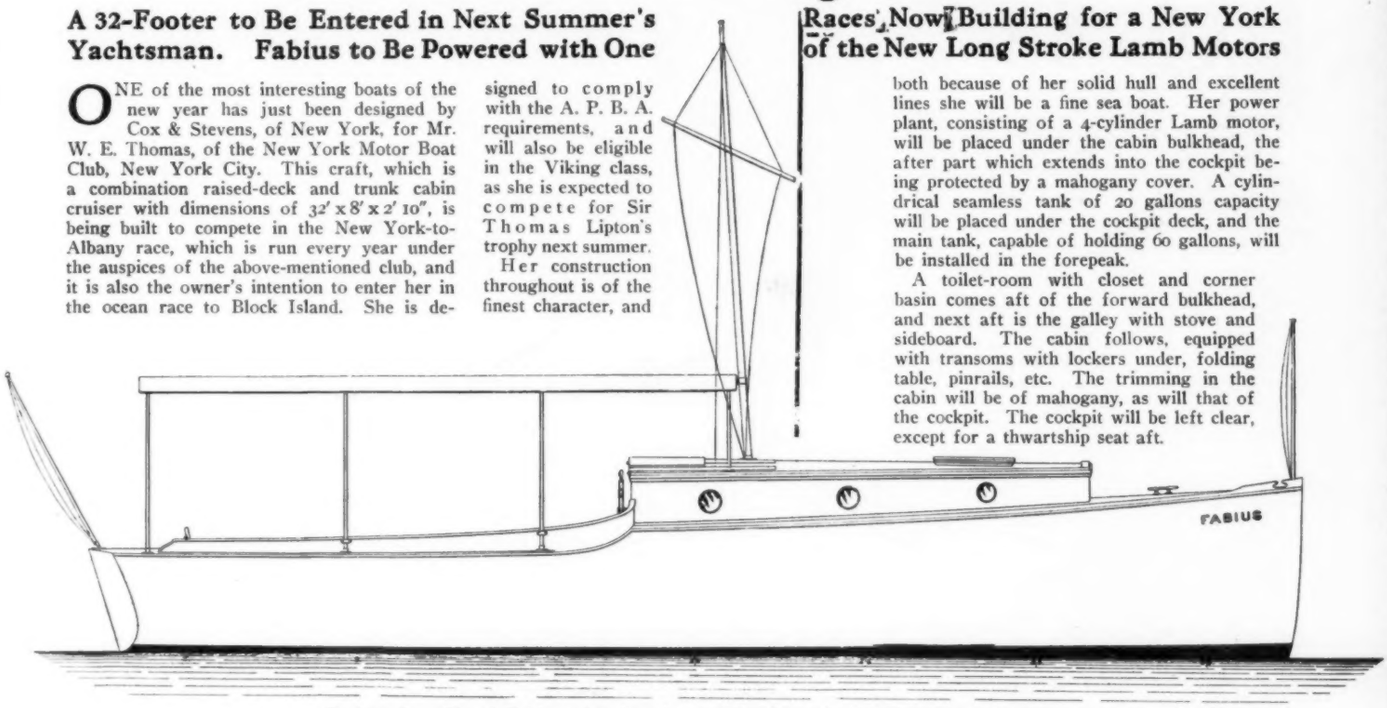
A 32-Footer to Be Entered in Next Summer's Yachtsman. Fabius to Be Powered with One of the New Long Stroke Lamb Motors

Races; Now Building for a New York

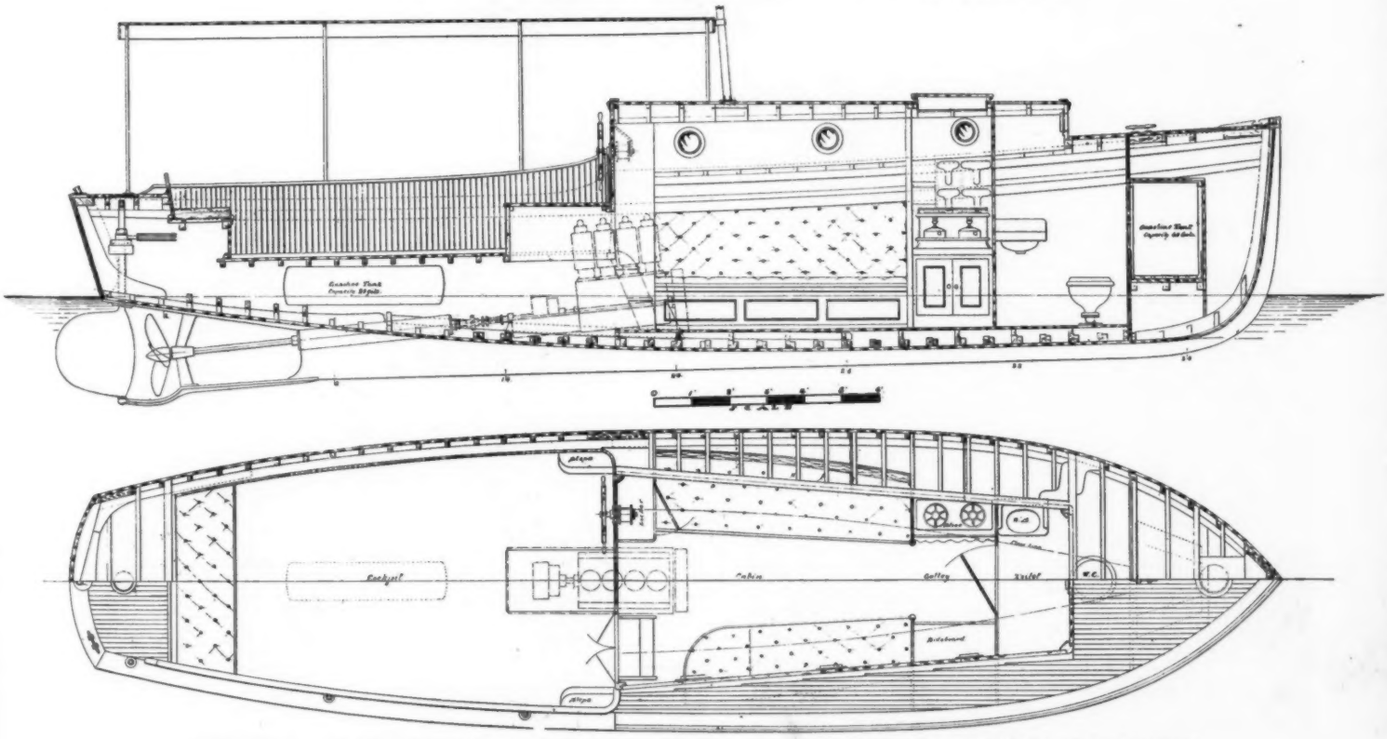
ONE of the most interesting boats of the new year has just been designed by Cox & Stevens, of New York, for Mr. W. E. Thomas, of the New York Motor Boat Club, New York City. This craft, which is a combination raised-deck and trunk cabin cruiser with dimensions of 32′ x 8′ x 2′ 10″, is being built to compete in the New York-to-Albany race, which is run every year under the auspices of the above-mentioned club, and it is also the owner's intention to enter her in the ocean race to Block Island. She is designed to comply with the A. P. B. A. requirements, and will also be eligible in the Viking class, as she is expected to compete for Sir Thomas Lipton's trophy next summer.

Her construction throughout is of the finest character, and both because of her solid hull and excellent lines she will be a fine sea boat. Her power plant, consisting of a 4-cylinder Lamb motor, will be placed under the cabin bulkhead, the after part which extends into the cockpit being protected by a mahogany cover. A cylindrical seamless tank of 20 gallons capacity will be placed under the cockpit deck, and the main tank, capable of holding 60 gallons, will be installed in the forepeak.

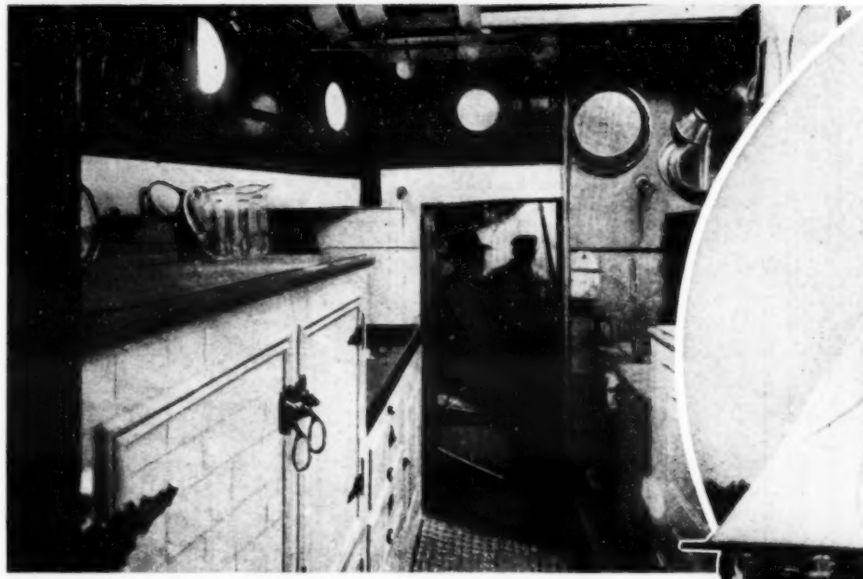
A toilet-room with closet and corner basin comes aft of the forward bulkhead, and next aft is the galley with stove and sideboard. The cabin follows, equipped with transoms with lockers under, folding table, pinrails, etc. The trimming in the cabin will be of mahogany, as will that of the cockpit. The cockpit will be left clear, except for a thwartship seat aft.



Outboard profile of Fabius, showing the combination raised deck and trunk cabin.



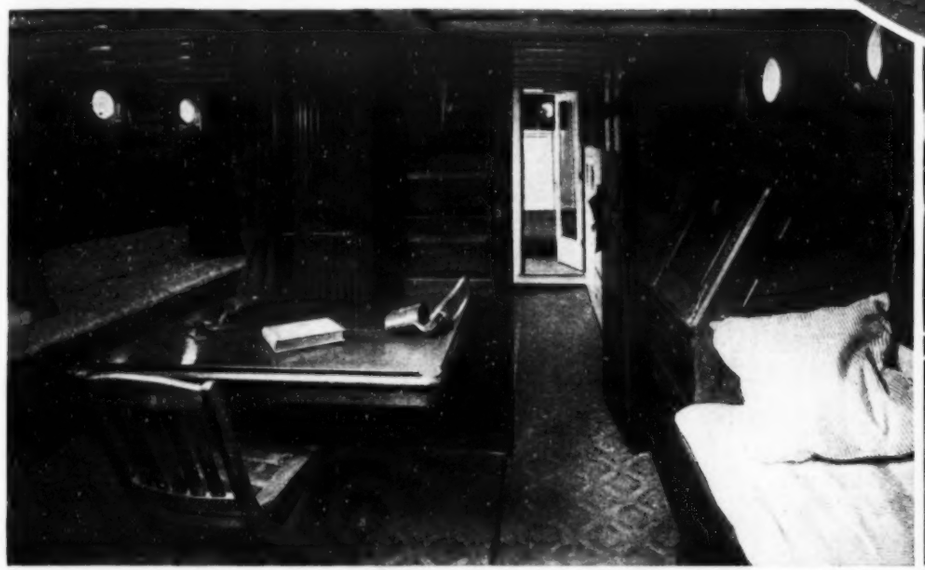
Arrangement and inboard profile plans showing excellent construction details and a well balanced arrangement.

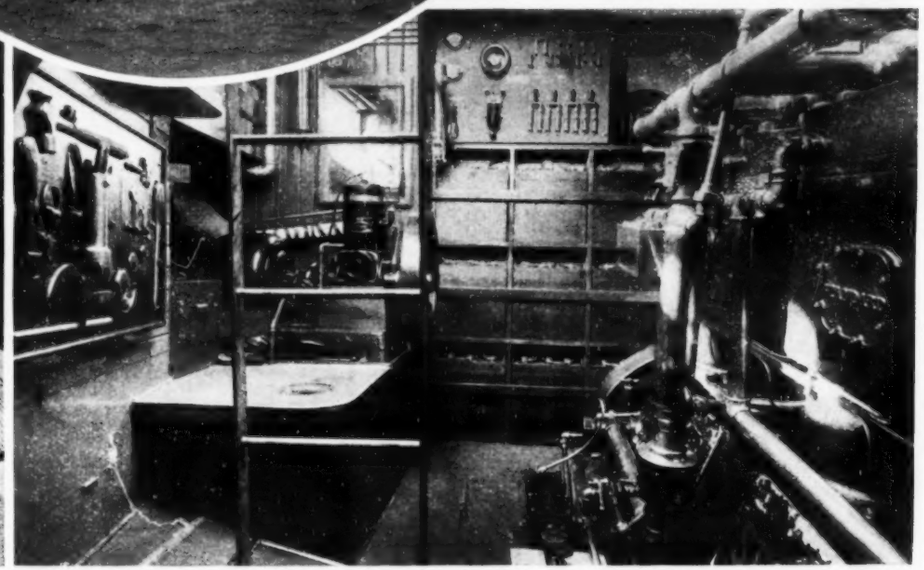


The 76 Ft. Auxiliary Schooner FAREEDA

THE 76-foot auxiliary schooner, built at the yards of the Essington Shipbuilding Company, Ltd., after designs by J. Murray Watts, of Philadelphia, was formally put in commission recently, and, with her owner, Alex Van Rensselaer, and wife, aboard, is now cruising in southern waters.

The dimensions of the schooner are: 76′ over all, 58′ waterline, 17′ beam, 4′ draft and 9′ draft with centerboard. This shoal draft will en-





Above, the galley, finished in blue and white tiling. Below, a view of the main saloon which is finished in teak and is luxuriously appointed.

Under sail alone Fareeda makes 8 knots; her heavy-duty Standard motor drives her at the rate of 7½ knots, while with sail and power combined she is capable of better than 10 knots.

able her to be used to advantage in southern cruising.

The yacht is not dependent entirely on her sails, but has a Standard motor installed, of the heavy-duty type, rated at 75 h.p., with cylinders 8″ x 10″. Moreover, there is a separate electric lighting and pumping plant run by a smaller gasoline engine. The electric plant will include a large storage battery set which will furnish current for the incandescent lights, electric fans and such small conveniences as electric heaters, cigar lighters, etc.

The yacht is finished inside and out in East India teak; the paneling is of Colonial pattern, and the bathrooms and galley are finished in blue and white tiling. No pains have been spared to make her the most complete and luxurious craft of her size.

Owing to her great beam, the accommodations are unusually roomy and comfortable. The main saloon is 18′ long. The owner's stateroom 9′ long. A 6′ x 8′ bathroom is arranged en suite with the stateroom, and there is a separate toilet leading off the main saloon. The galley opens into the main saloon and is equipped with a Webb coal-burning range, tiled refrigerator and the usual sink and lockers. The captain has a separate stateroom forward; two of the crew are berthed in the forecastle, in which there are two bunks, 4 lockers and a separate toilet-room. The engine is located under the after deck and shut off from the owner's quarters by a water-tight and fireproof bulkhead. There is a small trunk over the engine-room with skylight windows giving plenty of light and air. Two more of the crew have quarters aft of the engine compartment.

The schooner is steered by an Edson gear with a beautiful teak wheel inlaid with holly. The engine control is led on deck alongside the wheel. The yacht carries two launches in davits. The owner's launch is a beautiful teak-finished craft, 16′ long, with a 10-h.p. Sterling motor of the 4-cylinder type, which gives her a speed of 12 miles.

The general appearance of this boat shows a clipper-bowed schooner with a moderate sail plan, the sails being well inboard, especially the main sail, which can be reefed without going out on the boom, a valuable feature in heavy weather, as the boat is expected to cruise in the West Indies in the winter, and along the Maine coast in summer.

The bow sports a figurehead reminiscent of the old days of clipper ships, when the American flag was a familiar sight on all seas and the American sailors took a sentimental pride in the beauty of their vessels. The figurehead represents a West Indian Island girl, and is carved from teak, imitating, in a very lifelike way, the bronze complexion of these beauties. The trail boards on either side of the figurehead are carved in gold scrolls and a gold stripe runs the boat's length below the bulwarks.

A 44-Footer for the Pacific Coast.

A Seaworthy Cruiser Whose Sleeping Arrangements Accommodate Seven Persons. Her Roomy After-Deck From Which the Boat is Steered a Feature.

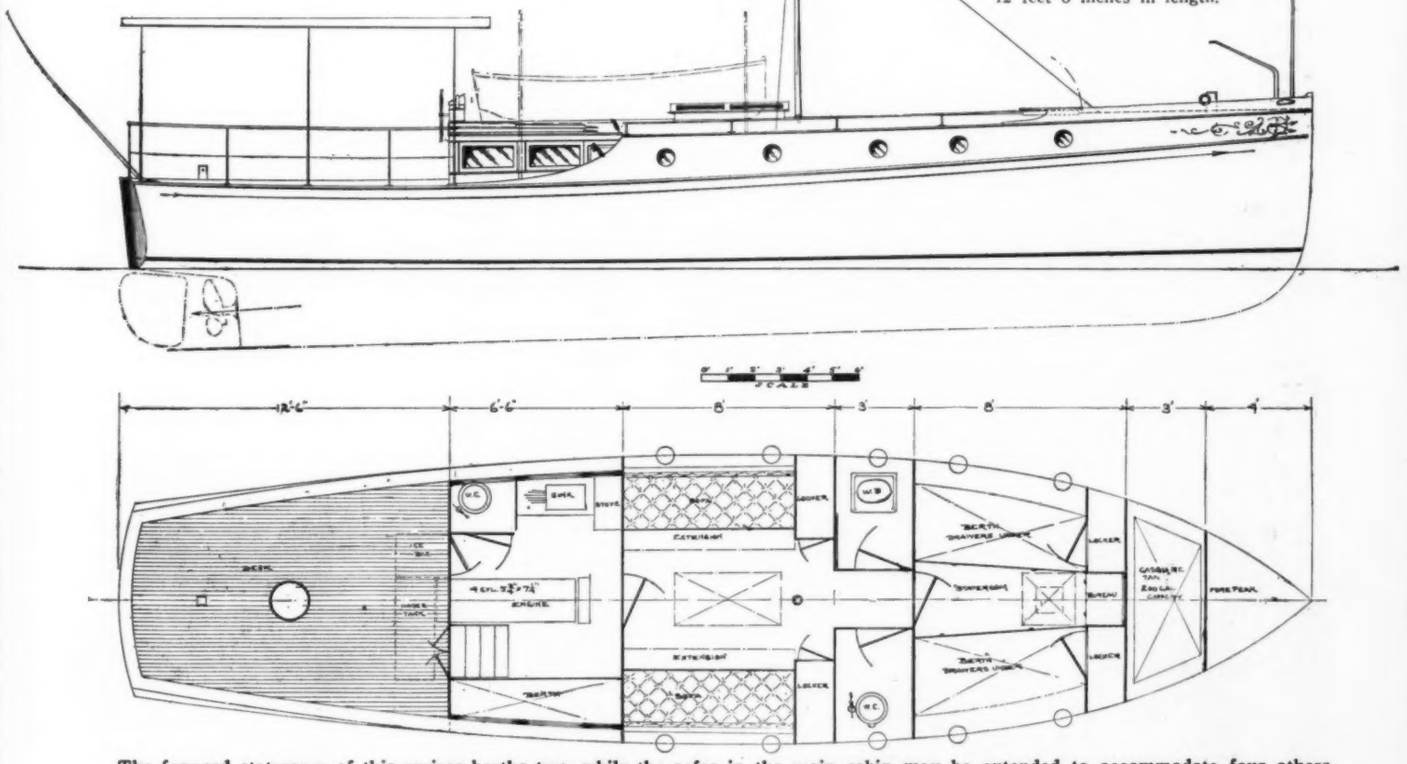
THE accompanying plans are of a 44-foot cruiser designed by the New York Yacht and Engine Company, Morris Heights, New York, which gives rather unusual accommodations for a boat of this length. The boat, which is intended to be used on waters of the Pacific Coast, is laid out with the engine-room just forward of the roomy cockpit, and the main cabin and stateroom forward. The gasoline tank, which has a capacity of 200 gallons, is placed just aft of the forepeak bulkhead, and is also separated from the rest of the boat by another bulkhead aft. The stateroom with two berths follows this, and room is found here for a bureau, which is placed forward between two lockers at the head of the berths. Aft of the stateroom on the port side is a separate compartment given over to a lavatory, with the usual medicine chest, while opposite it is a toilet.

Next follows the main cabin or saloon, which is furnished with two extension sofas which at night may be let out for the accommodation of four persons. Locker space is also provided in this compartment. Following the saloon is the engine-room, in which will be placed the four-cylinder 5¾″ x 7¼″ 24-30-h.p. 20th Century engine which will comprise the power plant. The engine-room is also used as the galley, and to this end there is located on the port side forward a stove with sink adjacent. The ice-box is rather ingeniously contrived, being placed under the after deck with room. A door opening into the engine-room in a separate toilet for the crew is located in this compartment, and a pipe berth has its position on the starboard side. The companionway is also on this side.

The after deck which is quite sizable, occupying as it does more than one-quarter of the boat's length, will accommodate the placing of several deck chairs. The boat is steered from this deck, the wheel being placed centrally on the cabin bulkhead. In addition to the icebox which has been mentioned, the water tank is disposed under this deck, and there is also a hatch to facilitate inspection of the tiller lines.

Forward on the raised deck is a flush hatch over the stateroom which can be raised for ventilation purposes, and also for escape in case of accident. A skylight over the main cabin admits light to this room. The boat carries a motor tender on deck, and, with her signal mast and awning over the after deck, presents a pleasing appearance.

The boat's dimensions are as follows: Length, 44 feet; beam, 11 feet, and draft, 3 feet. The cockpit is the largest compartment of the boat, being 12 feet 6 inches in length.



The forward stateroom of this cruiser berths two, while the sofas in the main cabin may be extended to accommodate four others, the paid hand having his quarters in the engine-room.

A 75-Footer with Clean, Unbroken Sheer.

Having a Short Raised Deck Forward Which Tapers into a Low Bulwark Running to the Stern. Low, Well Proportioned Deck Houses Arranged to Give Least Possible Obstruction to Deck Surface.

THESE plans of a 75-foot cruiser show one of the new type of motor cruisers that has been developed so successfully by Bowes & Mower, of Philadelphia, Pa. This design shows the present tendency to get away from the typical raised-deck boat with different deck levels and a broken sheer line, and gives instead a boat with a clean, unbroken sheer with a short raised deck forward which tapers into a low bulwark running to the stern. The main deck is on one level from stern to the forward end of the forward deck-house, allowing the awning to be carried out on one level, and thus adding greatly to the craft's appearance.

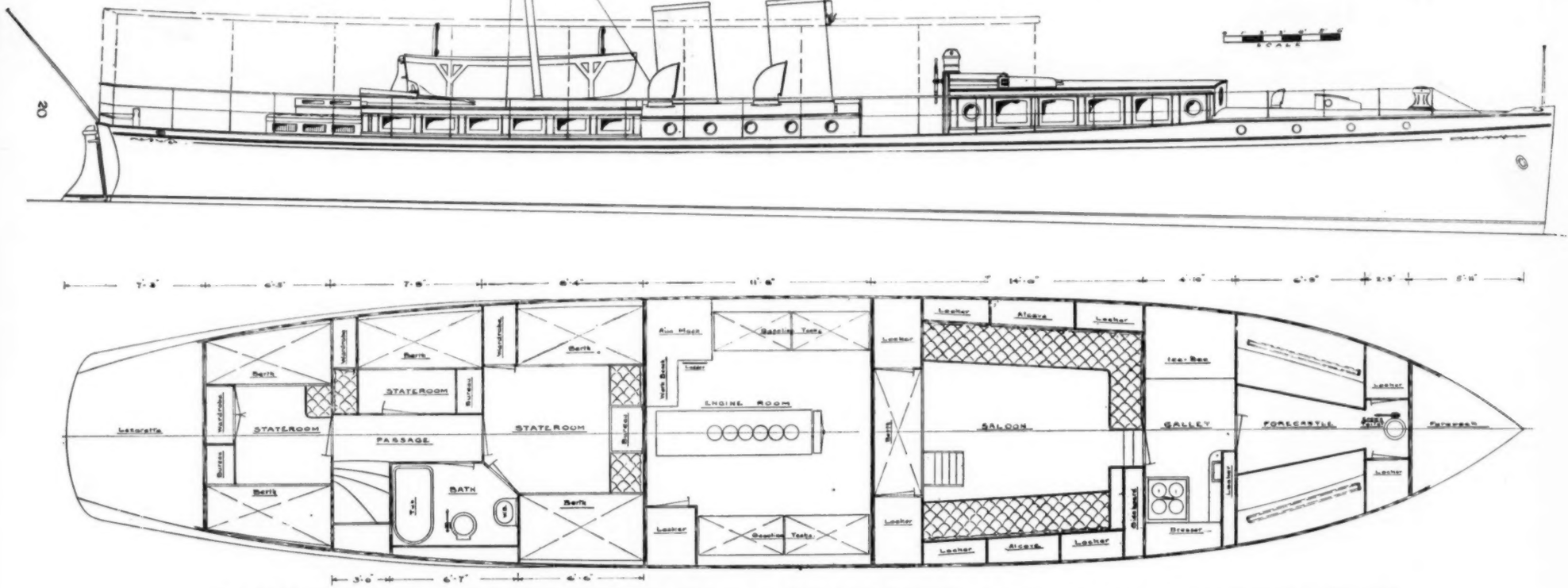
The stem is straight with full deck lines, giving a nicely worked-out flare to the forward sections, and a fine entrance at the waterline. The stern shows the modern curved transom with outboard rudder which not only looks well, but is the most practical arrangement for the steering gear. The deck-houses are low and well proportioned, and arranged so that they serve their purpose with as little obstruction to the deck surface as possible. The after deck is 13 feet 6 inches long with a grating forming a seat over the steering gear at the after end, and ample room for deck chairs. The side decks are wide enough to allow easy passage forward to the bridge deck, which is on the main level and very roomy. The wide bridge-deck seat is on top of the low engine-room trunk. The funnels are placed over the engine-room and take the exhaust from the engine and provide ventilation for this compartment.

Below, the staterooms are forward, separated from the engine-room by a double water-tight bulkhead, which will be practically sound-proof. The companionway has a curved stairway landing in a passageway, from which the three staterooms are entered. The owner's room is just aft of the engine space, and there is a double stateroom aft of this. On the port side is a single stateroom, and opposite is the bathroom with tub, wash-basin, toilet, and the usual linen locker and medicine chest.

The engine-room is located amidships to give proper performance of the boat, and is 11 feet 6 inches long with double watertight bulkheads at either end.

The engine is a six-cylinder 6" x 10" Loew Victor, which will give a cruising speed of 12 miles per hour. The gasoline tanks are located on either side of the motor.

The main saloon is reached by a companionway from the bridge deck, and is 14 feet long between bulkheads. The galley, just forward of the saloon, is 4 feet 10 inches long with the usual fixtures.



The design of this boat is well worked out as to comfort-giving detai ls, and the engine is placed amidships where its weight will give proper performance of the vessel.

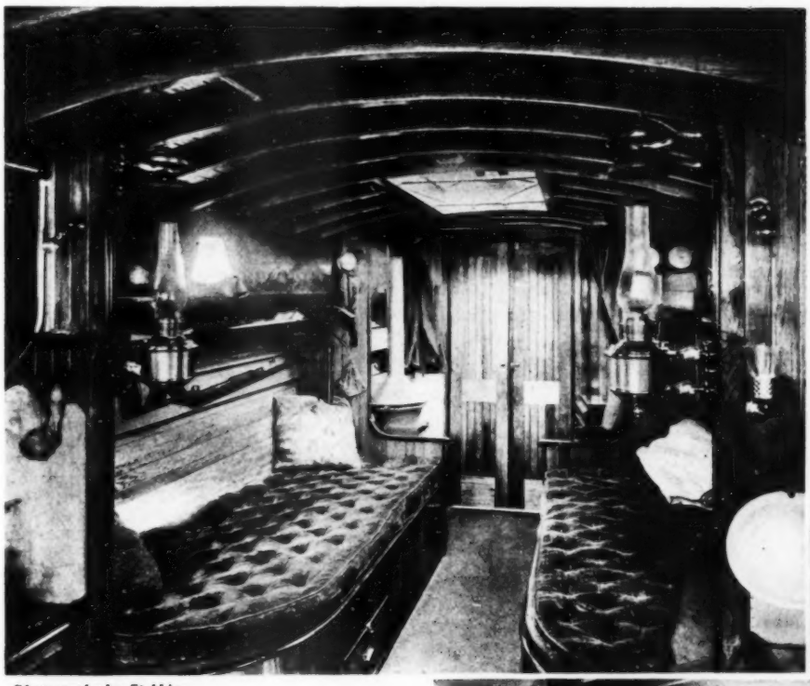
A 44 Ft. Gunning Motorboat

THE photographs on this page show the gunning boat, Cooter, designed and built for Mr. J. L. Sturtevant, of Quincy, Mass., member of the Boston and Wollaston Yacht Clubs. The design embodies the owner's desires in minute detail and has been carried out very successfully by Murray & Tregurtha, of South Boston, Mass. Cooter is an able boat, 44 feet in overall length, with a beam of 9 feet 6 inches. Her most striking feature is her staunchness; of heavy construction, she is strong enough to be beached and ride out a heavy, pounding sea, while she has so little top hamper that she would live in seas which would put most boats of her length out of commission. With her wide beam of 9 feet 6 inches, she is a very large boat for her length, but she is fine enough on the underbody to give a good speed of about 11 or 12 miles per hour.

She is so arranged that everything is ready to hand. The owner can step aboard her at any time of the day or night and get under way with the smallest amount of trouble imaginable. She is strictly a one-man boat, as spark, throttle and reverse controls are carried to the cockpit, and are positive and easy of operation. A rather unusual feature is that the oil supply for lubricating the motor as well as the tank for kerosene oil for the stove are carried on deck under the boat cradle.

Her large ports give admirable ventilation to the cabin and engine-room, and she makes an ideal boat for summer cruising, but she shines most as a gunning boat for duck hunting in the fall. She has all the conveniences for comfort in the severest weather, as she is equipped with a coal stove, and wide, deep, comfortable beds. Her interior arrangements consist of a toilet forward, a stateroom and roomy cabin following, and the engine-room with galley aft. The main cabin is fitted with transoms on either side with locker space under and pin rails above, while aft of the transoms are locker and dish closet. The engine installed is a 4-cylinder, 6½" x 8" Murray & Tregurtha, with Bosch magneto, force-feed oiler, and large independent gravity sight-feed cups to each cylinder. The boat is also equipped with an up-to-date lighting system, as well as large lamps in each compartment. In addition to the power plant, the engine-room contains the galley, consisting of a three-burner oil stove on the port side, with locker for pots and pans adjacent. Aft are lockers for batteries, tools, etc. On the starboard side forward is the sink, with capacious icebox following, and additional locker space aft. The outside finish where the boat is painted is battleship gray, and the mahogany trimmings make an exceptional attractive arrangement.

While the newest, Cooter is hardly the most important vessel in Mr. Sturtevant's fleet. Two years or so ago, he conceived the idea of lengthening his 66-footer, Grey Duck II, instead of abandoning her and buying a new one, and so he sent his cruiser to Murray & Tregurtha's yards, and when a good deal of sawing and hammering had been done, Grey Duck III, an 83-footer, was launched. The 66-footer was also there at the launching, but, like the lady who dined with the tiger, you couldn't see her, because she had been swallowed up during the ceremony. Mr. Sturtevant had had his boat cut in two just abaft the galley, a 17-foot section inserted, pilothouse put in, and cabin lengthened, and had then had her sewed up again. The joints were strengthened with steel girders, and the new frames gave her a bit flatter bottom aft, without materially changing her beam on deck.



Photographs by Stebbins.

The cabin is fitted as it should be on a boat of this kind—with all the essentials but with no unnecessaries.

In addition to the 4-cylinder Murray & Tregurtha motor, the engine-room contains galley, stove, sink, and capacious ice chest.

A Trim 30-Foot Day Cruiser.

Having Galley with Insulated Ice Chest in the Large Engine Compartment Amidships. Fuel and Air Tanks Carried Under Seats in Cockpit.

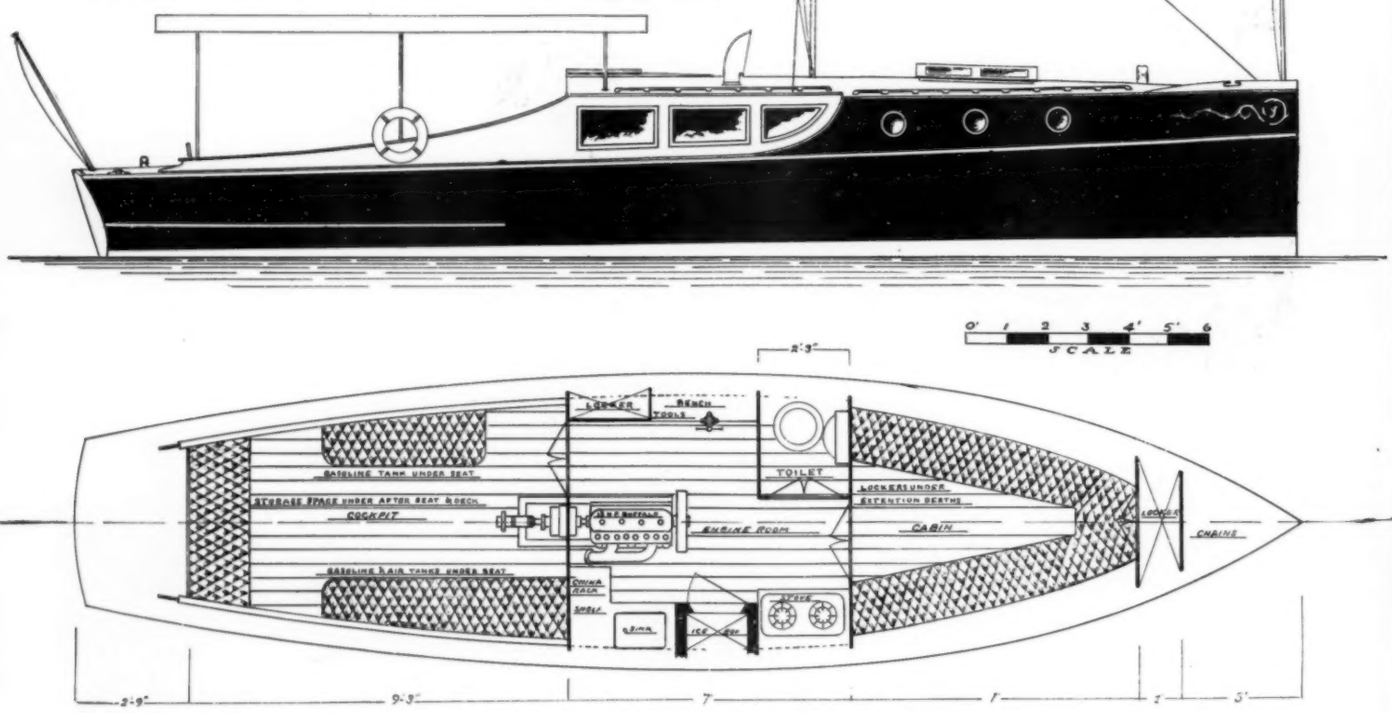
A THIRTY-FOOT day cruiser of pleasing design is that shown herewith from the board of E. Drolet, Park Laval, P. Q., Canada. She is of the later development of the raised-deck type, in which the sheer strake has been cut away at a point several feet forward of the termination of the raised deck in order to allow for the placing of three windows, to give better light and ventilation to the engine-room. Three ports in the cabin forward have been retained, and with the addition of the skylight over this compartment the boat should make a very comfortable one for cruising.

The interior arrangement plan is laid out with the engine-room and cabin equal in length, although, since the engine compartment is placed amidships this section of the boat has the greater area. In the eyes is a compartment for the chains, and directly following this, a locker, separated from the cabin by a partial bulkhead. Extension berths line the cabin on both sides, and the cushions meet and stretch across the forward end. Locker space has been provided under the berths.

As has been said, the engine-room is the larger of the two interior compartments of the craft, and in it are found room for the galley, icebox, sink, work-bench and toilet, in addition to the power plant. The galley equipment is all arranged on the starboard side of the boat, beginning with a two-burner stove forward, and with the icebox following. It may appear that the icebox is in too close proximity to the stove for economy in the matter of ice used, but the refrigerator is a substantial one, well insulated, and the stove being an oil-burner, there is no heat contained in it for any length of time after the meals have been prepared. Following the icebox is the sink, and set against the after bulkhead are china rack and shelves.

On the port side aft is a roomy locker with the work-bench, fitted with vise and having a full equipment of tools, running forward from it to the toilet. This compartment is partitioned off from the engine-room, and is accessible through double doors swinging in. The equipment consists of marine pump, toilet and folding wash-basin.

The power plant, which consists of a 15 h.p., 4-cylinder Buffalo engine, is placed with the reverse gear extending under the cockpit bulkhead, and reached through a hatch in the cockpit floor. This arrangement also brings the control of the boat within easy reach of the helmsman, and makes the craft one which is handled by one man without difficulty. The companionway exit to the cockpit from the engine-room is on the port side of the engine. The cockpit will accommodate eight or nine people on the fixed seats.



This clean-cut cruiser is representative of the styles prevalent in Canada at the present time.

A Husky Little Open Boat.

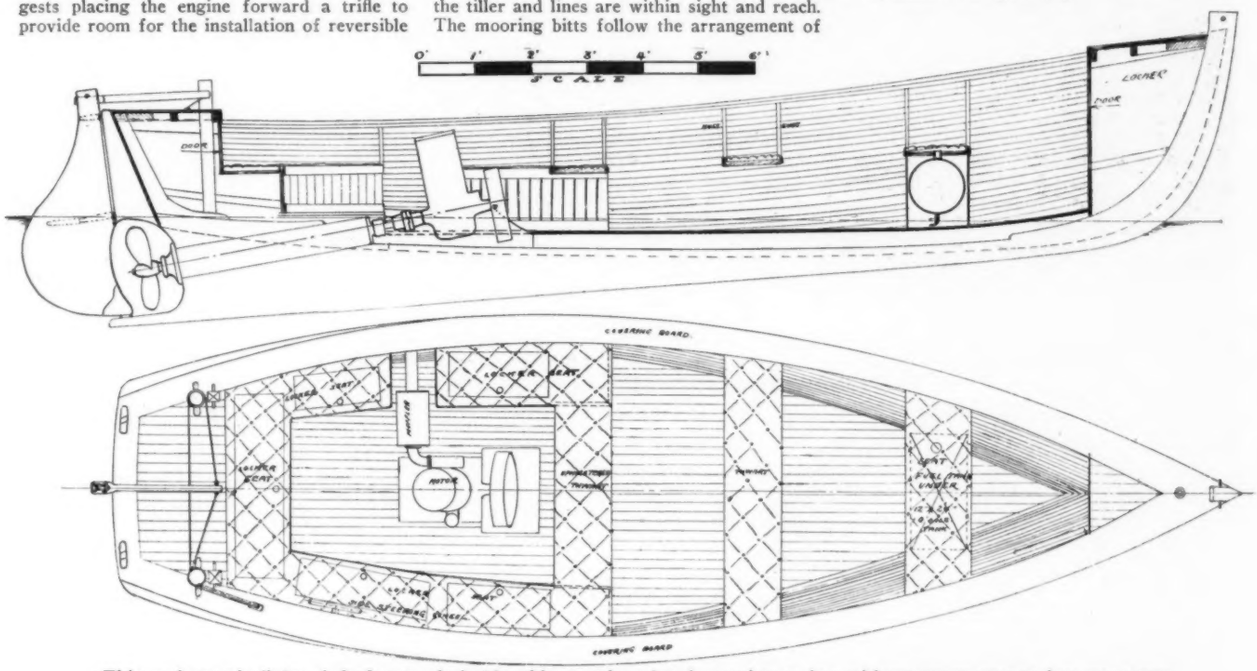
A Craft Which Will Stand a Good Deal of Rough Weather Even When Heavily Loaded Modeled After the Hampton Fishing Boats of Casco Bay and Powered with a Kerosene Engine

AS THE designer, William J. Deed, Jr., of Boston, Mass., says of this little 20-foot open launch, "she is a husky little boat for the man who wants a craft which he can load up to the limit and take out when weather conditions tell him he shouldn't." She is planned for a man who admires the sea-going qualities of the Hampton boat of Casco Bay, and as the designer has made considerable study of that sturdy craft she is built along similar lines. With a width of 6 feet 2 inches and a draft of 23 inches, she is beamy, of large carrying power and stability, and it will take quite a sea to make her turn tail and run for a harbor.

There is no reverse curve in the bow sections—they rise right up like a dory's, with liberal sheer and flare, and the after-body lines are designed to work with these forward lines in producing a clean-running model of exceptional carrying capacity on a light draft. Her seating arrangement calls for three thwarts forward of the engine and side seats around the power plant, broken on the port side to provide room for the muffler which exhausts slightly above the waterline, together with another seat aft. This last seat and the side seats have locker space under them, and there are doors opening into storage space under the two decks. This arrangement permits of the accommodation of a large number of people, and also furnishes space for odds and ends which must be kept out of the way and under cover.

The motor is a 5-h.p., two-cycle kerosene affair which will drive the boat at about seven miles per hour. It is installed just as in the Hampton boats without reversing device, but for the every-day owner the designer suggests placing the engine forward a trifle to provide room for the installation of reversible propeller fittings or a reverse gear. The gasoline tank, which has a capacity of ten gallons, is placed under the forward thwart.

The boat is steered either from the side wheel or by the tiller in an emergency, and the tiller and lines are within sight and reach. The mooring bitts follow the arrangement of the Hampton boats, except that forward a pin is driven through the stem-head, in place of having a bridle, as this seems a little too fisherman-like. Such a boat costs about $8 a foot, finished inexpensively.



This 20-footer is light of draft yet admirably able to take what is coming to her without annoyance to her occupants.

Spring Maid, a Western Express.

Having Full Automobile Control and a Speed of 33 Miles Per Hour Under Ordinary Conditions. Double Planking of Red Cedar and Mahogany with Shellaced Silk Between.

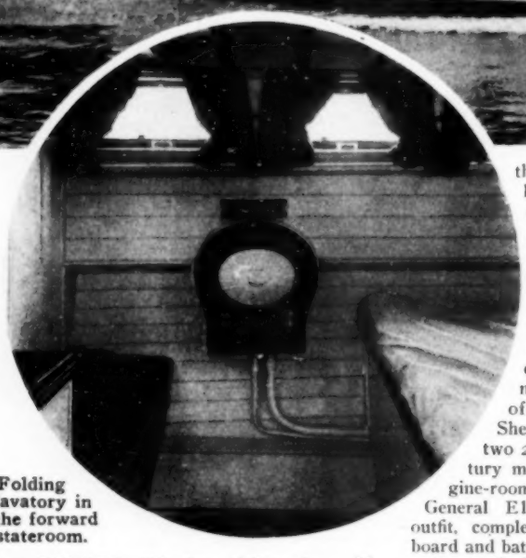
SPRING MAID, owned by M. S. Brigham, of Seattle, Wash., was designed by L. E. Geary, and built by Markey & Wilson, with dimensions of 34′ x 5′ 4″.

The workmanship on the hull is of the same character as that turned out by the finest eastern yard. The frame is of oak and all stringers are of Oregon pine. The planking is of two thicknesses, the inner of 5/16″ red cedar, the outer of select Philippine mahogany, with Union silk laid in shellac between. The decks and the interior are finished in cabinet grade mahogany.

The engine installed under the flush hatch is an eight-cylinder Van Blerck fitted with a Delco electric starter and lighting system. This outfit was installed under Mr. Brigham's personal supervision, and it has given complete satisfaction in starting the motor and lighting the boat. The dash is very nearly a duplicate of that of the modern automobile, and one is astonished at the ease with which the boat handles when dashing across Lake Washington at a thirty-three-mile clip. This mahogany runabout, with its superb appointments is an example of the increasing Western desire for the best.

Powered with an eight-cylinder Van Blerck motor, and with electric starting and lighting, Spring Maid handles at thirty-three miles an hour as easily as a high grade automobile.

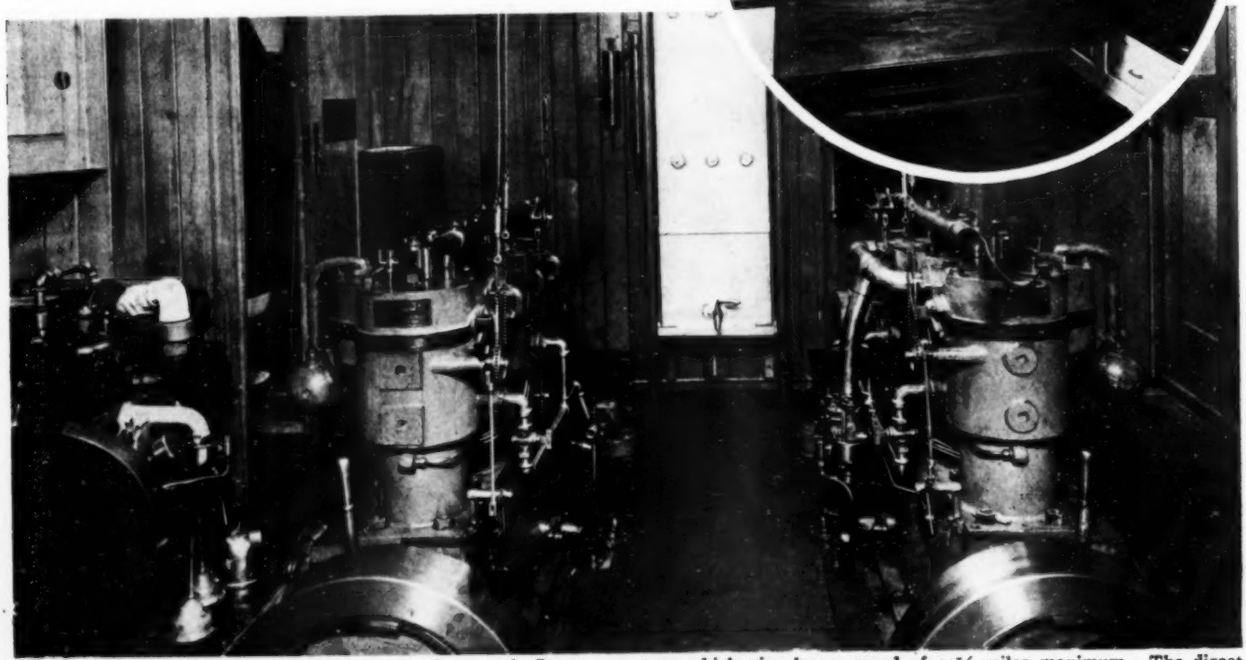
A-TWIN-SCREW SOUTHERN-CRUISER



Folding lavatory in the forward stateroom.

GRANADA III, just delivered to Mr. M. H. Brill by the New York Yacht, Launch and Engine Company, Morris Heights, N. Y., is considered by the builders the biggest 60-foot yacht they have ever built. She has the extremely wide beam of 16 feet, and so her accommodations below are far greater than the average 60-footer is able to boast of. Her speed, too, is good, for, although her power is small for a boat of her dimensions, she covered on her trial trip a measured mile at a speed of 10½ miles per hour. She is powered with two 24-30-h.p. 20th Century motors, and the engine-room contains also a General Electric lighting outfit, complete with switchboard and batteries. This compartment is in the forward part of the boat, well illuminated by a skylight. The galley is on the port side of a passage leading from the saloon to the deck, and is completely equipped in every way. The main saloon is luxuriously fitted out and is equipped with transoms which may be used for sleeping purposes. There are three staterooms and a completely equipped bathroom.

A view of the saloon.



Granada's power plant consists of two 24-30 h. p. 20th Century motors which give her a speed of 10½ miles maximum. The direct connected G. E. lighting outfit can be seen to the left of the picture.

PRIZE CONTEST IN QUESTIONS AND ANSWERS

The Best Cabin Arrangement.

Eleven Cabin Arrangement Plans Each Bringing Out Some Characteristic Feature. Advantages of the After Cockpit, Bridge Deck and Double Cabin Boat Shown.

THE PRIZE CONTEST—Answers to the First Question in the November Issue.

A Typical Cruiser.

(The Prize-Winning Answer.)

PERHAPS no other type of motor boat construction affords the numerous possibilities for variation of interior arrangement as does the medium-sized motor cruiser of, say, 40 feet. Yachtsmen interested in a boat above this class many times leave the interior arrangement of the craft to the skill and experience of its designer, going only so far with instructions as to furnish him with service intended and the accommodations required. Ardent cruising enthusiasts, owners of one-man control craft, within the 40-foot class, have often acquired unlimited pleasure in first planning the boat to fulfill their wants. The owner of such a cruiser expects to give up many of the comforts found only in a large boat, and to go in along with his friends and sort of "rough it" for all there is to be had in the sport. The accompanying sketch is expected to convey the idea as to the relative positions of the relative parts as described in the following table.

After first deciding on the practical limit of size, accomodations, etc., the first thought should be given to the location of the power plant, controls, and general distribution of weight in order to secure best results. With the motor definitely located (usually about amidships or just aft of amidships under a portable hood), endeavor to arrange all things so each is handy, "get-at-able" and readily removable from the boat, should occasion demand it.

Determine the amount of space needed for sleeping accommodations, taking due care to provide ample room for each person. A long, roomy, cabin with seats wide enough to sleep on without adding extensions or hinged parts, is to be favored for sleeping quarters. Where made-up berths of hinged type or other material are used, see that sufficient clear passageway is left through the cabin its entire length, both to the after entrance and the forward emergency exit. Sleeping quarters in the cabin proper partly eliminates one fault found in many small cruisers, namely, the tendency to subdivide the boat into numerous small compartments or rooms, and excludes the boxed-up feeling experienced in such small parts. Privacy is easily secured by means of sliding curtains of a fairly heavy texture.

C. E. BRADLEY,
Fall River, Mass.

QUESTIONS FOR THE MARCH ISSUE.

1. **Discuss the various forms of fastenings used in motor boat construction, giving their various characteristics and suitability for use at various parts, such as planking, framing, finishing, etc.**
Suggested by C. E. Bradley, Fall River, Mass.

2. **Explain the best method of building a raised deck cabin on an open boat, using sketches to illustrate the work.**
Suggested by A. O. Goold, Portland, Maine.

3. **Explain a satisfactory method of removing a fly wheel from the crankshaft of a marine motor.**
Suggested by W. B. Moores, Newburgh, N. Y.

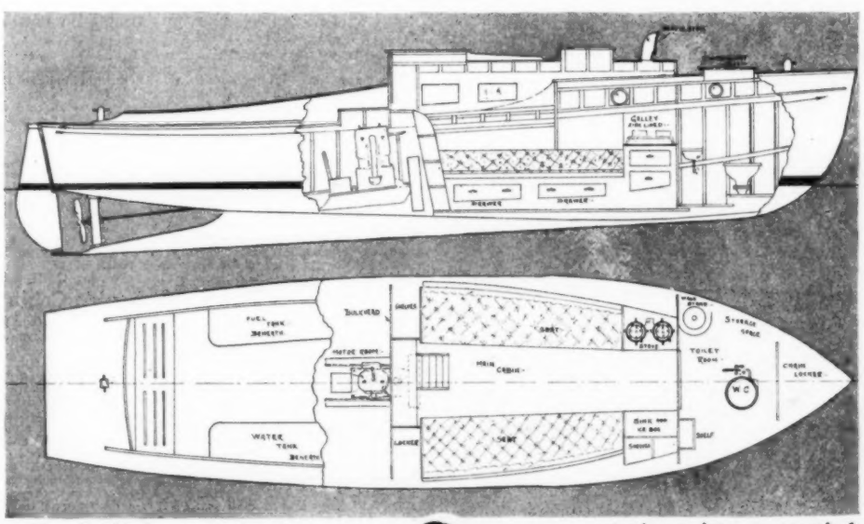
RULES FOR THE CONTEST.

Answers to these questions, addressed to the Editor of MoToR BoatinG, 119 West 40th St., New York, must be (*a*) In our hands on or before January 25, (*b*) about 500 words long, (*c*) written on one side of the paper only, (*d*) accompanied by the senders' names and addresses. (The name will be withheld and initials or a pseudonym used if this is desired.) Questions for the next contest should reach us on or before the 25th of January.

The prizes are: For each of the best *answers* to the questions above, *any article* advertised in the *current issue* of MoToR BoatinG, of which the advertised price does not exceed $25, or a credit of $25 on *any article advertised* in the *current issue* of MoToR BoatinG which sells for more than that amount. (*There are three prizes, one for each question, and a contestant need send in an answer to but one if he does not care to answer all.*)

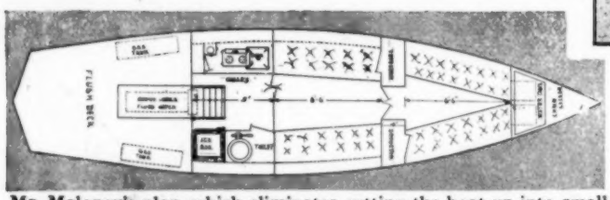
For each of the questions selected for use in the next contest, *any article* advertised in *this issue* of MoToR BoatinG, of which the advertised price does not exceed $5, or a credit of $5 on *any article* advertised in *this issue* of MoToR BoatinG, which sells for more than that amount.

For non-prize-winning answers published we will pay space rates.

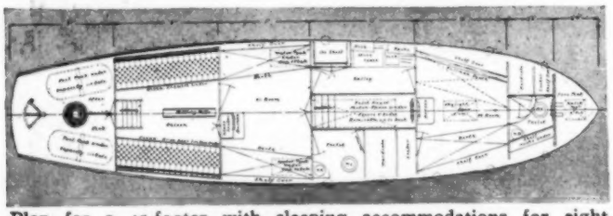


Mr. Bradley's arrangement plan combines simplicity and roominess into a practical and well balanced design.

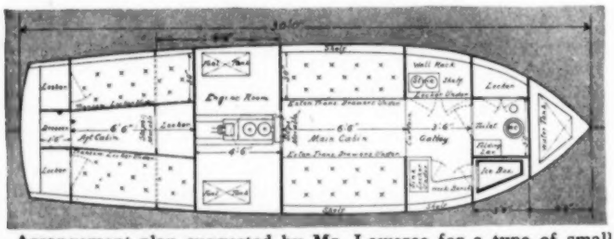
QUESTIONS & ANSWERS



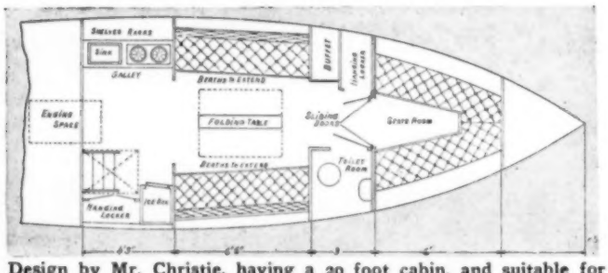
Mr. Maloney's plan, which eliminates cutting the boat up into small compartments with many passages and doors.



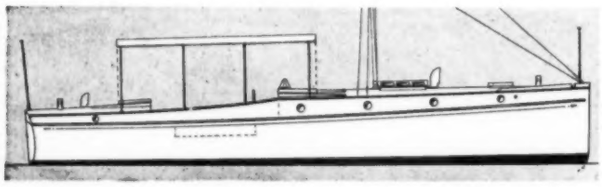
Plan for a 45-footer with sleeping accommodations for eight people, designed by Mr. Robertson.

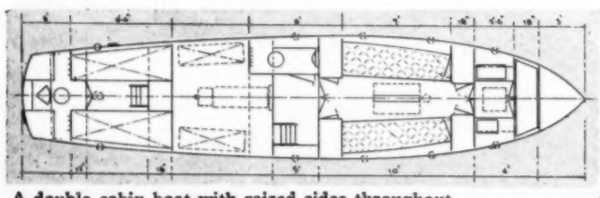


Arrangement plan suggested by Mr. Loweree for a type of small cruiser which is very popular today. It is of the double cabin variety with bridge deck over the engine.



Design by Mr. Christie, having a 20 foot cabin, and suitable for boats 33 to 38 feet in length.





A double cabin boat with raised sides throughout the entire length and a nearly plumb bow, designed by Mr. Kenney.

Roomy and Accessible.

THE engine is installed under a flush deck. By removing the steps and hatch every part of the engine is practically as accessible as if it were installed in the center of the cabin and at the same time does not take up the space so valuable in a boat of this size. It will be noticed that the shelves under the galley and ice box on either side of the boat are only 6 inches wide, thus giving ample room to get around the motor at this point.

The galley as shown has sanitary dish rack, bread board, cupboards for pots and pans, and drawers for provisions, which I think are very convenient. Removing the legs from the alcohol stove and suspending by means of four strap irons, as shown, leaves the space between the pantry and sink clear.

Having the galley in the after end of the cabin gives the ideal arrangement, as it makes it convenient to serve meals either on deck or in the cabin. The main cabin has accommodations for sleeping four persons—if necessary—by raising the back of the seats, as shown in the dotted outline. The wardrobes run from the floor to the cabin roof, so that one's clothes can be kept in good condition at all times. The forward cabin is practically a private stateroom, and as is shown, is equipped with drawers for clean linen, etc. Drawers are fitted under the bunk in the main cabin, and in the after end of the forward cabin.

Of course this is simply an outline of the main features in a boat of this size. By dispensing with the stateroom feature, the layout can be readily adapted to much smaller boats.

F. H. MALONEY, Bridgeport, Conn.

Suitable for Eight People.

THE best arrangement for a medium size cruiser is one which meets all of the owner's requirements. The accompanying plan is as near to being perfect, that it, having the requirements most boatmen desire, as I have ever seen.

The forepeak is 3 feet 6 inches long. This is large enough to hold the chains, etc., that a 45-footer should carry. On deck is an 18 inch x 18 inch hatch.

After the forepeak is a toilet, which is 3 feet 6 inches long. On the starboard side is a shelf with hooks under. Against the after bulkhead is a corner wash basin. Over the toilet on the watertight bulkhead is a mirror. On the port side is a wardrobe, which is full height, and forward of the wardrobe is a locker with a shelf over. There is a folding door leading aft.

Next comes the 7-foot forward stateroom. On the starboard side is an ordinary berth with drawers under and shelf over. On the port side is a Pullman berth with a shelf over. Against the after bulkhead is a bureau with a mirror over. On deck is an 18 inch x 30 inch skylight, which is used both as a skylight and ventilator.

The next 8 feet is the special feature of the whole arrangement. Built over the motor is a sunken pilothouse with the floor and sides removable up to the deck, to have access to the engine. Forward of the engine is a space to store oil, grease, etc. On the starboard side is another toilet with a corner basin. On the door leading to the wardrobe is a mirror. Forward of this wardrobe is a locker, with a door opening into the forward stateroom. If it were so desired, the wardrobe could be cut down and a bath tub substituted. On the port side is the galley with the ice chest, stove, sink and dish racks placed as shown.

L. C. ROBERTSON, Nyack, N. Y.

A Double Cabin Boat.

THE plan herewith shows an arrangement on a 30-foot by 9-foot cruiser with good roomy accommodations for four persons and even six may sleep comfortably aboard without overcrowding.

The transom berths are all 6 feet 6 inches long and 30 inches wide, and those in the main cabin are of the extension type and may be extended 18 inches, making each 4 feet wide. Those in the after cabin run 2 feet under the bridge deck to the engine room bulkhead.

In this proposed plan the cockpit is 6 feet 6 inches fore and aft, being 2 feet longer than the space required by the engine compartment. However, if the boat is intended principally for cruising, more room below deck in the after cabin may be obtained by reducing the length of the cockpit to 4 feet 6 inches.

In the aft cabin two full length lockers and a dresser or chest of drawers are placed in the after end, and also a locker under the movable steps. The water tank is placed well up in the bow of the boat and floored over for the storage of ground tackle above. Aft of this comes a roomy toilet which is 3 feet square and contains a folding lavatory and a large locker on the port side. The space on the starboard side next to the toilet is occupied by the ice box, which is large enough to hold one hundred pounds of ice.

Next comes the galley, which is 3 feet 6 inches long and extends the full width of the boat. It contains a wall rack, work bench, stove, sink and lockers. The locker doors here may have racks fastened to them on the inside, which will be found useful for holding small articles. A portiere divides the galley from the main cabin.

H. W. LOWEREE, New York City.

For 33- to 38-Footers.

THE cabin plan shown in the sketch contains a good sized galley, located aft where the most ventilation can be had. This space also answers for the engine room. Some prefer to have the galley and engine room separate on account of the supposed danger from fire. I do not believe that the danger from this source is greatly increased by the galley fire. If gasoline is allowed to flood or leak out, it can be ignited from the engine room and in other ways. The only safe method is to keep it in the tanks and containers provided for it, and then the galley stove can do no harm.

The main cabin or saloon has a folding table and extension berths. The backs can be hinged at the upper edge to swing up, forming an upper berth. This arrangement with the stateroom forward provides sleeping accommodations for six or more persons. The toilet room between main cabin and stateroom is conveniently located and the space on opposite side contains necessary lockers, etc.

Of course, no one plan will suit every one. Also the cabin arrangement usually depends upon the exact amount of available room, location of engine, etc. Where this arrangement can be used, it should prove satisfactory, as all the necessary separate rooms are provided for and they can also be thrown into one which is desirable at times on a medium sized boat.

C. H. CHRISTIE, Saginaw, Mich.

A Handsome Double Cabin Boat.

AS is the usual custom, the forepeak, which is 3 feet fore and aft, is given over to stowage space for anchor cables, etc., with a 40-gallon fresh water tank under.

Four feet of length is used as galley compartment. There is an ice box 18 inches deep which extends up to the deck. The remaining space to port has the stove shelf with lockers below, while on the corresponding starboard side the sink and more lockers are located. Dish racks are arranged over sink space. An 18-inch hatch is directly above, which may be used as a means of egress in case of necessity and by way of which foodstuffs can be taken aboard, doing away with the nuisance of carting packages through the cabin. Ventilation is secured by two swing ports and the aforementioned hatch.

A really sizable main cabin, being 10 feet in length fore and aft, is conveniently located adjoining the galley. Two full length 18-inch wardrobes are built on either side of the boat aft of the wide 7-foot transoms, forward of which is an 18-inch buffet to port and a book case of like dimensions on the starboard side. Both these fixtures are 4 feet high and the top of one would satisfactorily serve as a shelf for small Victrola. Under the transoms at both the forward and after ends, lockers for shoes, etc., are suggested, and in the center one large drawer, permitting shore clothes to be laid without folding.

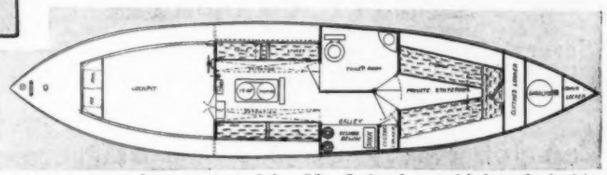
L. KENNEY, New York City.

QUESTIONS & ANSWERS

Three Separate Sleeping Rooms.

THE interior arrangement of a boat's cabin varies according to the views or requirements of its owner. The plan finally adopted is generally a compromise between what is desired and what the cabin's size compels one to accept—the main point being to utilize the space to the best advantage. By selecting ideas from each of several admirable plans a boatman gets the benefit of the combined brains and experiences of many. When cruising two-thirds of the time is spent in the open air, so cockpit and deck space should not be sacrificed to excess sleeping accommodations. The number of berths, their location, size and type, would depend on the plan adopted. The location of the engine is important. If a cruiser is to be a "one man" boat the engine should be placed near the steering wheel, providing instant access, when necessary, and also making the spark, throttle and control levers less complicated in running them to the steering wheel. Many locate the toilet room in the extreme bow, but, with only one such room in a boat, it should be easily accessible from two directions, insuring convenience and privacy, which the bow location does not give. Some place the galley in the bow, instead of the toilet room. This is inconvenient when meals are served in the cockpit. Placing the galley in the engine room is unwise and the stove should be kept at a distance from the engine, for obvious reasons. An icebox should be located near the galley. A plentiful supply of running water is essential and tanks for same can be placed under the decks, floor, lockers, or over the engine—some of the locations providing gravity feed, while others call for pumps or an air pressure system. Full height lockers of ample size should be provided and lockers of all kinds should be ventilated. Besides port holes or sash windows every cabin should have a hatch near the bow to provide an exit in case of emergency as well as to admit fresh air.

HARRY G. LELAND, Baltimore, Md.



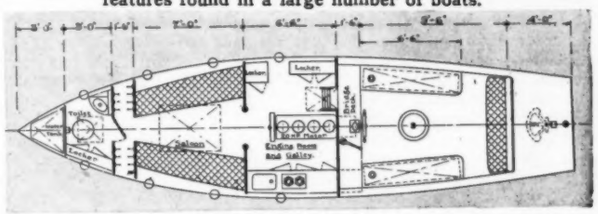
Arrangement plan suggested by Mr. Leland, combining desirable features found in a large number of boats.

A Sensible Design.

THE diagram shows a plan which the writer believes to be nearer the ideal arrangement. The fresh water tank is in the forepeak with cable bin over it. The water flows by gravity to the wash basin in the toilet and to the galley sink. This occupies the first three feet from the stem. The toilet room utilizes the next three feet, contains all the usual fittings and has a twenty-inch square hatch overhead for fine weather ventilation, and to provide an emergency exit forward. An eighteen-inch space between partitions is next aft and forms a large wardrobe with a great amount of full height hanging space. This is designed for shore clothes in particular. Next, in seven feet of length, comes the saloon with a large skylight over the center. Broad cushioned transoms for sleeping with locker space beneath extend the full length. Narrow shelves run above the transoms to hold small articles. A folding table may be used for meals, or a fixed drop-leaf table may stand between the transoms if preferred.

The next compartment aft is the engine room, 6 feet 6 inches long, providing galley facilities on the port side, with a long, wide shelf, having roomy lockers and an ice-box located beneath. Tool lockers, oilskin locker, etc., are provided. Please note, too, that ample working room is allowed round the motor, a most important requirement and one frequently disregarded. The reverse gear extends partly under a bridge deck, which provides head room enough for adjustment and inspection whenever needed. Comfortable sleeping space for one can be had on the galley shelf by boarding over the sink, and using a mattress of suitable size upon it.

A. O. GOOLD, Portland, Me.



Mr. Goold's layout, which insures a generally useful boat, and provides very comfortable living quarters for a party of three.

Several Extremes.

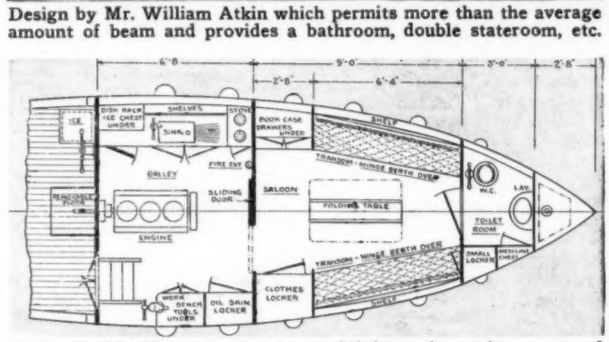
THERE is really no way of obtaining every accommodation within the limits of a medium sized cruising motor boat. The cabin plan is very important, especially if one contemplates living aboard for a week's or fortnight's time. Seems to me that a medium sized cruiser must designate one in the neighborhood of about 35 feet in length by a convenient width to obtain a maximum amount of room, coupled with seaworthy qualities and fair speed without excessive horse power.

The cabin plan attached is of an actual boat whose owner, his wife and guests have passed upon as being all that can be attained within so narrow limits.

The cockpit is somewhat aft of amidships, 5 feet long by full width of the boat and its floor is dropped 16 inches below the sheer. It is of course water tight and fitted with drains in each corner to carry away water. There is a water and gas tight, 3-ply diagonal bulkhead under the center of the cockpit floor. Aft of this are located the gasoline, water and oil tanks, the motor, which is 15 h.p., electric light plant, etc.; also a work bench, tool lockers and two full size berths. Ventilation is secured through port lights, skylight and stack for motor's exhaust. Entrance is had from the cockpit through the hatch on port side. Thus we have the whole power plant isolated from the living quarters.

The main cabin is 6 feet 3 inches long, with 6 feet 1 inch headroom, having two full width berths each side with drawers under each. The companionway divides the galley from the toilet room. An ice box is under the companion stairs, into which ice may be put through a hatch in the cockpit floor. A stove, sink, lockers, dish racks, etc., finish the furnishing of the galley. Being in the after end of main cabin the galley is most convenient to the cockpit, where most meals are eaten during the warm days of summer.

WM. ATKIN, Huntington, Long Island.



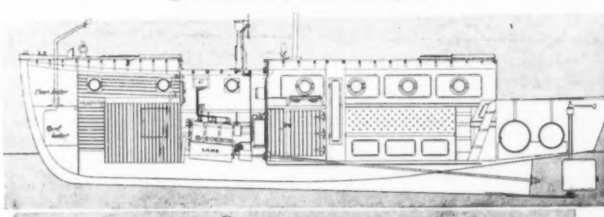
Design by Mr. William Atkin which permits more than the average amount of beam and provides a bathroom, double stateroom, etc.

Plan for a 35-Footer.

THE interior is divided into three compartments, the largest being the saloon, which provides sleeping accommodations for four persons. The berths are 6 feet 4 inches long, two being of the transom type with drawers under, and the other two directly above of the hinge type, which swing down when not in use, and serve as back rests for the transoms. Privacy can be obtained by arranging draw cushions in front of the berths. (A number of good articles on the construction of berths appeared in the September, 1911, issue of MoToR BoatinG.) Sight and ventilation are provided for by six ports, a cowl ventilator and a skylight. A large clothes locker occupies the remaining space on the starboard side, while directly opposite is a book case, with drawers under for linen, charts, etc. The table in the center being of the drop leaf type occupies very little space when not in use, or may be removable, if desired.

Forward of the saloon is the toilet room, which is three feet deep and extends the full width of the boat. It is provided with lavatory and a small locker, half of which opens as a medicine chest and the other half accessible from the saloon. Ventilation is gained through two ports. In the forepeak is the fresh water tank, filled from the deck, holding about 40 gallons. The chain locker is directly above. A sliding door leads aft from the saloon to the combined engine and galley room, the latter being so located in order to prevent odors from cooking from passing through the saloon, which is so offensive with a forward galley.

H. A. MOTZ, Philadelphia, Pa.



Design by Mr. Motz permits plenty of light to the engine room and good amount of locker space.

A Bridge Deck Cruiser.

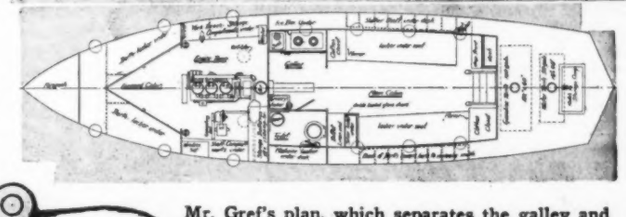
THIS design is for a cruiser 35 feet over all, a maximum beam of 10 feet and a draft of 3 feet 6 inches. It is of the bridge deck type and, although a heavy boat, a speed of 8 miles an hour can be economically maintained, using an 18 h.p. engine. The drawings presented with this article are intended to show the general arrangement of the interior.

The cabin arrangement is always a matter of personal taste, but to my mind the arrangement shown has many points in its favor. It affords most comfortable accommodations for four persons, and since both deck and lavatory may be reached from either cabin, without going through the other, it allows of greater privacy than is usual in small cruisers, which is especially desirable when there is a mixed party.

In the forward cabin, permanent berths are furnished and built high up from the floor, so as to allow for a maximum storage space underneath. In the after cabin transoms are provided, the backs of which drop down at night and make a wide comfortable berth. The after cabin also provides a maximum storage space for clothing, china, books, etc.

The toilet is equipped with toilet and corner lavatory and has in addition cabinets for medicine and linen. The galley was built in by itself.

WM. GREF, Yonkers, N. Y.



Mr. Gref's plan, which separates the galley and engine room and permits good ventilation.

QUESTIONS & ANSWERS

Lengthening Out the Boat.

Several Different Methods of Procedure for This Difficult Work. Particulars Which Should Be Given Special Attention Before the Work is Started.

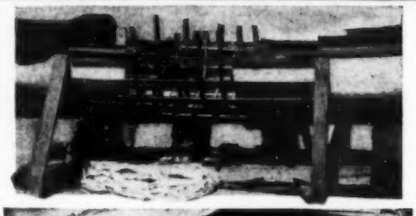
THE PRIZE CONTEST—Answers to the Second Question in the November Issue.

A Job Really Done.

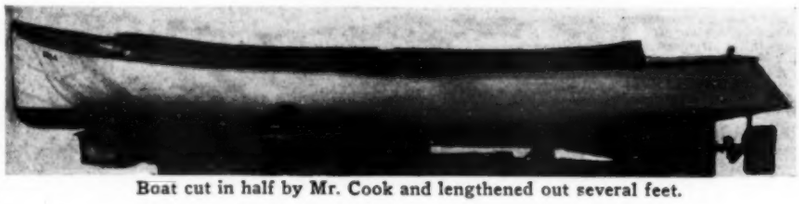
(The Prize-Winning Answer.)

THE first thing to be considered is: Can it be lengthened successfully? Some are too narrow; others do not have free and easy lines, are pot-bellied, in fact. In some, the sheer is so bad that when pulled apart it is impossible to true it up again.

But with a boat that meets these requirements, proceed as follows: Place the boat where you wish to do the work, prop and block up the stern level, both lengthways and crossways. Then stand off a little distance, and you will see a place where she seems to be largest, and where her lines seem to meet. This is the place to cut her in two. Remove seats, floor and other obstructions on the inside. Now block up the bow end loosely, and lower the blocking a little at bow to prevent saw binding and cut her in two, using a saw with lots of set. Then move the bow forward the distance you wish to lengthen her, and level up temporarily. Now put in the new piece of keel. This should have a ship lap on each end a foot long. The lap on the old keel should be on the outside, so as not to disturb the timbers. Cover the laps with thick paint and fasten securely with bolts and screws. After the timbers are put in a keelson, bolting through and through. Put in the stop-waters. This is done by boring a quarter-inch hole through the keel in the joint and filling with a soft pine plug driven in tight.



Now put on the battens; these should be ⅞ x 4 inches, and long enough to lap the ends three feet. Fasten the battens with screws. Then level up the bow end permanently; see that the keel is straight sideways; that the round or rocker is true; and, in preference to all else, see that the sheer is fair and true. This fairing up must be all done at once, and is the most particular job of all. Now fasten battens securely, furring out where needed to make them fair, and put in the timbers. These may be either steamed or boiled.



Boat cut in half by Mr. Cook and lengthened out several feet.

The boat is now ready for the planking. Commence at the keel, breaking joints at least two timbers as you go up. Be careful and have each piece of the new plank line up with the old. Seams should be open on the outside for calking. When planking is all on, set nails, smooth up, sandpaper, calk, putty and paint, and the outside is done. The gunwale, deck and combing should be put in to match the old, and the inside finished to taste.

Special attention should be given to leveling up the bow after the battons are on and to fitting in new keel.

ALTON G. COOK, Petosky, Mich.

Staggering the Cut.

THERE is one way to add to a boat's length that will give greater capacity and seaworthiness, and that is to cut her in half and splice a piece amidships. Adding several feet to the stem does not appreciably add to her roominess, nor does it increase the displacement beyond a definite limit, and should be resorted to only where a slight increase in length is desired, or where the object is to prevent squatting.

The most important consideration in adding length to a boat is strength. Next to this comes appearance. It must be borne in mind that although the boat may be sturdy in her present size, an addition of length without extra reinforcement of some kind may render the hull incapable of withstanding the increased stress of the larger boat.

For the appearance, it is much more desirable to preserve clean fair lines between the aft and forward sections of the boat than to add a perfectly straight section amidships, and a little planning will hide all signs of the alterations.

First determine the point of widest beam and mark this as the division line of the splice. (See drawing.) Next mark a line between the ribs about 4 or 5 rib-spaces forward and aft of this division line, and mark every alternate plank to be cut, as per sketch. This staggers the joints and makes the strongest possible splice. Before cutting, securely nail a thwartship brace over each of the last-named cutting lines to prevent the boat springing when cut into two sections. It will also be necessary to remove all ribs between these lines before any cutting is attempted, splitting same, where necessary, to save planking We are now ready for sawing. Bore a one-half-inch hole at the top of each cutting line on each plank to be cut, and insert the compass saw, sawing through to the next plank. The longitudinal seams need not be sawed and will readily separate. Having cut the planking, saw the splice joint in the keel at the division line, as per sketch, bending back loose planks where necessary to clear compass saw. The boat is now in two pieces.

Now carefully line and plumb up the two sections the required distance apart and fasten them rigidly with braces to floor or ceiling. Cut out the splice piece for the keel and bolt it in place, drilling for stop-waters at the planking line. These are plugs driven in to prevent leakage at the keel joint. Some temporary stuff of straight-grained wood about 1" x 2", and long enough to stretch about three feet either side of the cutting lines on the planking, must now be nailed on the outside of the hull, bridging the gap between the forward and aft sections. The shape of the finished hull will depend upon these rib-bands, and the utmost care should be taken to get sweet fair curves that will join those of the two sections without the ugly transition from one curve to another so often seen in poorly-spliced boats. There should be about six or seven of these rib-bands on a side about evenly spliced from keel to sheer line. The new ribs can now be steamed and bent to fit these rib-bands, allowing, however, a block of the same thickness as the planking between the rib and each rib-band.

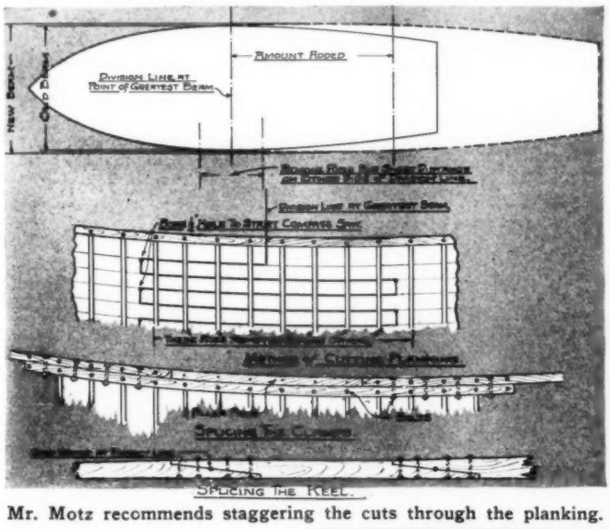
Having fitted and fastened the ribs temporarily to the rib-bands, bend in the clamp splice. This should be of a somewhat heavier section than the old clamp and should extend about 2 or 3 feet under and beyond the ends of the old clamps, bolting to same and through each rib as shown in the sketch. For building up decking, etc., the space above the new clamp and between the ends of the old ones should be fitted with a filling piece, also shown in the sketch. W. E. Morz, Philadelphia.

QUESTIONS & ANSWERS

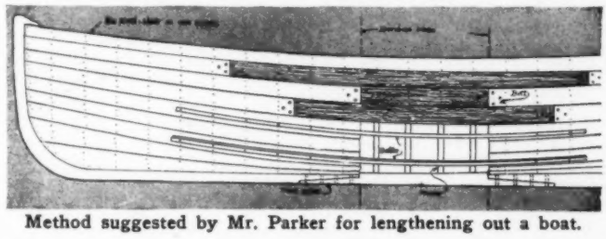
Work Should Be Planned Before Starting.

ASSUMING the boat in question has good ends, and it is desired to improve the accommodations or capacity, this can be done without affecting very much speed, by adding a number of frames the same shape as the amidship frame. A boat 30 feet in length, by adding six feet amidship, can have accommodations aft for the galley, the cook, the handy man or jack of all trades, and get the smell of cooking out of the cabin. It

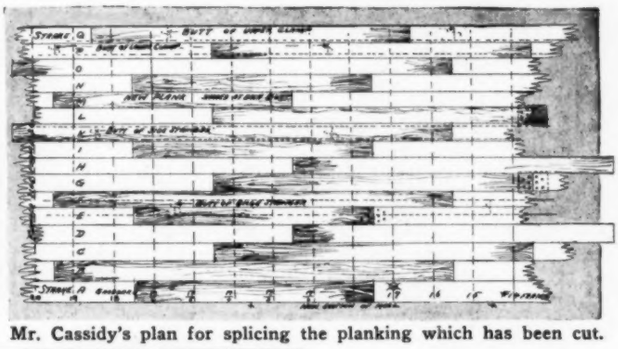
(*Continued on page 44.*)



Mr. Motz recommends staggering the cuts through the planking.



Method suggested by Mr. Parker for lengthening out a boat.



Mr. Cassidy's plan for splicing the planking which has been cut.

Electric Lighting on a Motor Boat.

Several Wiring Plans Suitable for a Particular Type of Boat Using Battery and Dynamo. The Switch-Board Wiring and Connections to the Various Electrical Equipment.

Electric Lighting System for a Cabin Boat.

(The Prize-Winning Answer.)

FOR boat lighting, six-volt systems are generally used, six volts being a convenient pressure for both ignition and lighting.

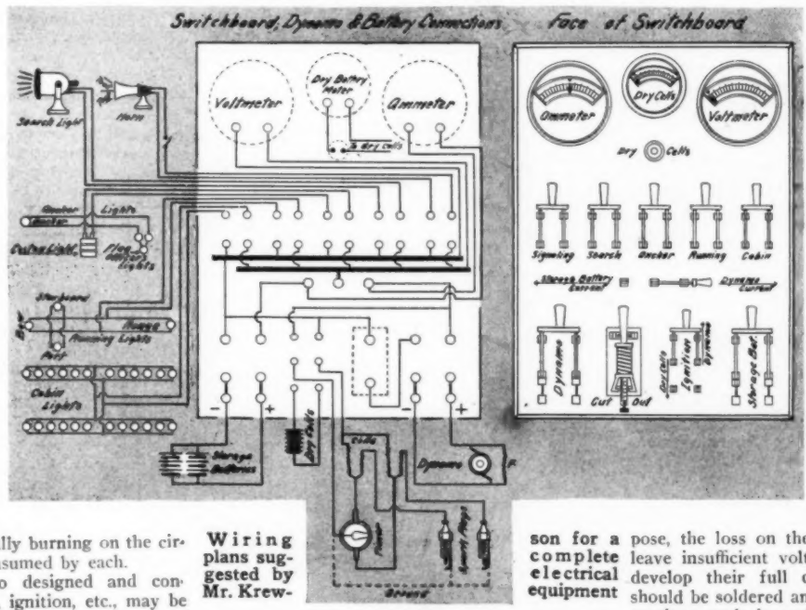
The ideal system for a small cabin boat should be as follows:

1. A small dynamo, driven either from the fly-wheel of the engine or from the propeller shaft, capable of generating enough voltage and delivering enough current to charge a six-volt storage battery at its normal charging rate, which rate depends upon the ampere hour capacity of the battery.

2. A six-volt storage battery, whose normal output in amperes will be sufficient to take care of the normal load, the load depending upon the number of lamps generally burning on the circuit and the current consumed by each.

3. A switchboard so designed and constructed that the lamps, ignition, etc., may be fed either from the dynamo or battery separately or from the two working in parallel. It should be so arranged that it will be possible to charge the battery at the same time the lamps are being supplied, and it should also contain suitable meters for reading voltage and current.

4. The regulation of the system should be such as to avoid any fluctuations in voltage, due to changes in the engine speed, etc. As the dynamo for a low voltage system is generally used without a field rheostat, to obtain this desired result, the storage battery must be floated directly across the line, the cushioning effect of the battery tending to keep the voltage constant.



Wiring plans suggested by Mr. Krewson for a complete electrical equipment

5. The center of distribution of the system should be such as to allow all lights to burn with the same brilliancy when the circuit is closed through all of them. It is often the case on a low voltage system that the light from the last few lamps on the circuit is so poor as to be of no use whatever.

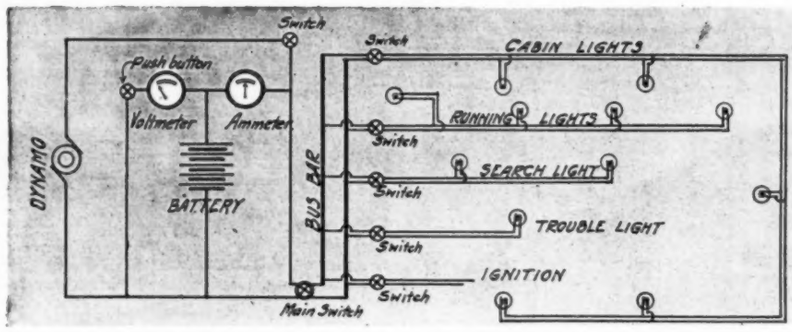
6. The wire should be large enough to carry the full load without any appreciable loss in voltage along the line. If the wire happens to be too small for the purpose, the loss on the line will be such as to leave insufficient voltage across the lamps to develop their full candlepower. All joints should be soldered and well-taped and all connections made in such a manner, that if trouble should arise at any time, it may be safely

QUESTIONS & ANSWERS

assumed the trouble is not in this part of the work.

To accomplish the above results, the accompanying switchboard and system of wiring was designed and installed on a thirty-five (35) foot cabin boat, and has since been giving excellent results. In fact, with a full load of twenty-four lamps on the circuit, each lamp consuming one and one-fourth (1¼) amperes, the dynamo and storage battery working in parallel and each taking care of its share of the load, the ignition switch was thrown in and no fluctuations in the light were noticeable.

R. H. Krewson, Philadelphia, Pa.



Wiring plans designed by Mr. Horenburger applicable to an open boat by omitting the cabin light circuit.

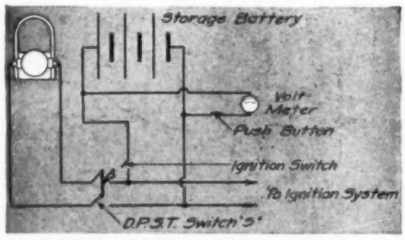
A Storage Battery Installation.

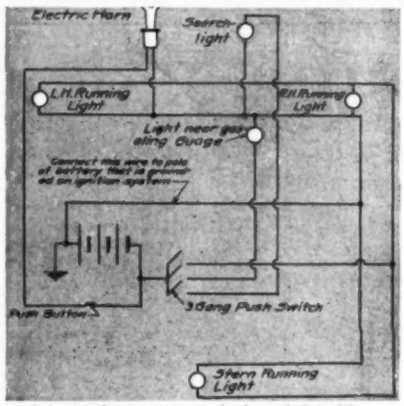
SINCE the cruising type of motor boat is perhaps the most suitable type in which to apply electricity for lighting purposes, the accompanying description will cover the installation of an electric system in the average cruiser. The essentials are a direct current generator with a capacity of from 8 to 15 amperes and about 10 volts. A storage battery of ample capacity—that is, from 80 to 120 ampere hours, at least, and suitable switches, wiring and instruments for measuring the current being generated and being used.

The generator is mounted so as to drive from the engine fly-wheel by means of a belt or friction pulley, so that it will run at its rated r.p.m. The leads from the generator are carried to the switchboard and through the voltmeter and ammeter, as shown on the diagram. Wires are then carried to the storage battery and back to the bus bar or distributing bar. From the bus bar, leads are taken off for the various circuits through the switches provided. The circuits can be arranged to suit individual fancy, but it is best to separate the cabin lights, running lights, searchlight and binnacle light. A separate circuit is also provided for the engine ignition. The wiring should be done with No. 14 wire to prevent excessive drop in voltage from the battery to the lamps, and also to provide sufficient mechanical strength for connections and splices. Mouldings for concealing the wire can be secured in a variety of different forms which answer the purpose of protecting and concealing the wires at the same time.

In operation, when it is desired to charge the battery, the generator is started and the switch closed connecting the generator and battery. The speed of the generator is adjusted so that the charging rate on the ammeter shows that perhaps 5 or 6 amperes are flowing into the battery. The exact amount will vary and will depend on the manufacturers' recommendation for the particular battery used. An ordinary lead plate battery will do as well on a long, slow charge of perhaps two or three amperes, while the new Edison storage battery can stand anything from 8 amperes up, depending on the capacity. The ammeter should have the zero in the center and read both ways. The voltmeter is used to indicate the condition of the battery. If it is in a partially discharged condition, the voltmeter may show only 5.5 to 5.6 volts, and after charging for a number of hours, it may show 6.4 or 6.5 volts. The indication is obtained by a push-button switch which is generally incorporated in the instrument. If the voltage does not drop below 6.5 volts, the battery may be assumed to be charged. It is, however, difficult to determine when a battery is fully charged. When the dynamo is not running the current for the lamps is drawn directly from the storage battery. The ammeter will show about one ampere of current for each lamp burning. Should the lamps be required when the dynamo is running, the load will be taken by both the dynamo and the battery.

F. W. Horenburger, New York City.




Electric Horn
Search light
L.H. Running Light
R.H. Running Light
Light near gasoline Gauge
Connect this wire to pole of battery that is grounded on ignition system
3 Gang Push Switch
Push Button
Stern Running Light

A complete system designed by Mr. Dashiel.

A Complete System.

FOR the ordinary type of small cabin boat the length of distributing wires being so short that the resistance is scarcely noticeable and as low voltage lamps of ample candlepower can be obtained, a small number of storage cells and small generator will be all that is necessary.

It is for this reason that the writer recommends a voltage of six. This is easily obtained from small storage cells (3 in number) that can be charged during the day from a small dynamo, friction or belt driven from the engine fly-wheel.

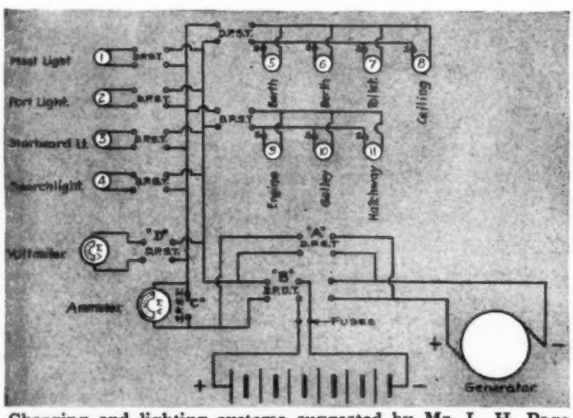
The storage battery should be located in a water-tight locker having a vent to carry off the fumes.

The wiring diagram shows the connections of dynamo to switchboard and battery, and the different circuits from the bus bars. The two meters are not necessary, but can be added at small cost, and the betterment of the set. Each circuit should be equipped with 5-ampere fuses and a double-pole, single-throw D. P. S. T. switch.

All outside or running lights should be controlled direct from the switchboard, and the inside ones controlled from the fixtures.

Lights over seats and in galley and toilet are screwed into wall brackets, while the rest are fastened in ordinary ceiling outlets. The engine light should be on a long cord. All outlets should have attached snap switches. All the fixtures can be of standard sizes, using reducing adapters or of the miniature size. All wiring should be done with No. 14 B. & S.

B. F. Dashiel, Baltimore, Md.



Charging and lighting systems suggested by Mr. L. H. Page.

Motor Boats of Miquelon.

A Novel Device Perfected by the French Fishermen Which Enables Them to Beach Their Dories. Means Whereby the Rocky Coast of the Islands off Newfoundland is Being Conquered.

By William Washburn Nutting.

IT IS strange that isolated Miquelon, the little group of French islands that lie off the coast of Newfoundland, should be able to "show us" anything in the motor boat line. Whether the stunt pictured in these photographs is absolutely original with these Frenchmen or not, I can't say, but they have been quick to appreciate its value, and to-day practically every motor dory in the two towns of St. Pierre and Miquelon is so equipped, and this means a very great percentage of all the dories in use—probably in the neighborhood of 150.

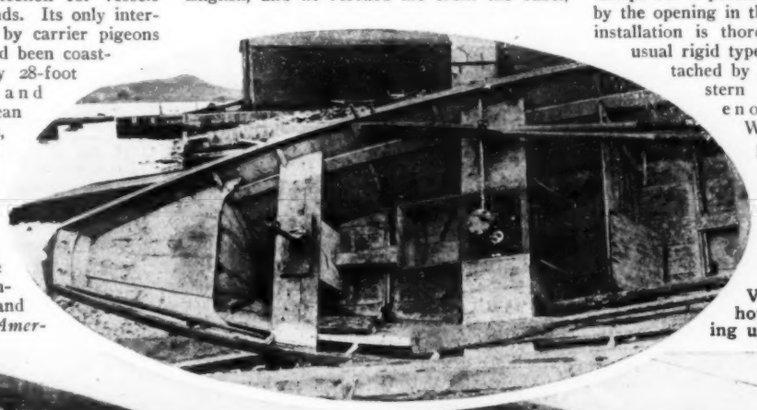
As there are no protected harbors in Miquelon, the fishermen are obliged to haul their boats up on skids laid on the rocky beach.

The Miquelon islands are more completely isolated from America than is France itself, for the only means of communication is the fortnightly steamer from Sydney in the summer, and Halifax in the winter. Few people visit picturesque St. Pierre, the capital, and only an occasional one of these ever reaches the town of Miquelon, 30 miles away at the other extremity of the tiny archipelago, for Miquelon has no protection for vessels except during westerly winds. Its only intercourse with St. Pierre is by carrier pigeons and the weekly tug. I had been coasting Newfoundland in my 28-foot auxiliary sloop, Nereis, and dropped in out of the ocean for a day at Miquelon, which is about 35 miles from Cape La Hume, and practically half way to St. Pierre, for which I was heading. I was as much surprised at Miquelon as the townspeople were themselves that morning when they awoke and discovered *le petit bateau Americain* anchored in the roadstead. I had found Newfoundland, in some respects, pretty far behind, especially its smaller fishing villages, many of which boast no motor craft at all, and to find myself surrounded by a dozen chugging dories was like getting back to civilization again.

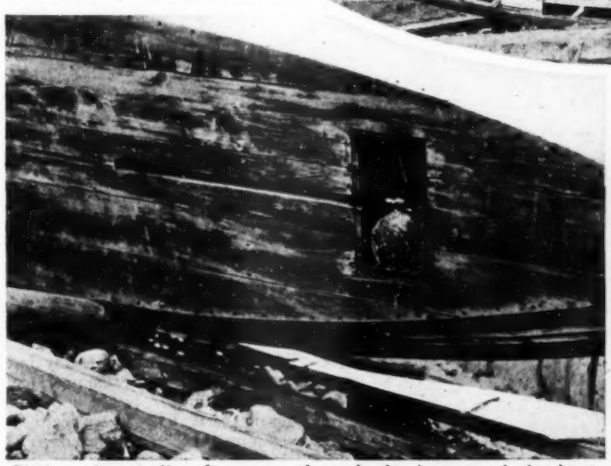
And such jabbering! The mayor, M. Borotra, is the only one in Miquelon who speaks English, and he rescued me from the babel, took me in tow, and, among many other interesting things, too numerous to mention here, showed me the fleet of motor dories with their unique propeller installation.

Due to the lack of protection from the strong winds which are so common in this bleak country, the entire fleet of 25 boats must be hauled far up on the gravelly beach beyond high water, by means of capstans. Obviously, this would be impossible with boats of the orthodox type, and to overcome the difficulty the propeller installation is so arranged that the shaft, strut and wheel may be hauled up into a trunk by means of a rod extending into the boat, very much as the center board is operated on a sail boat. A universal joint is placed just outside the stuffing box, but this comes into play only when the shaft is raised. When running normally, the propeller shaft is in alignment with that of the motor, so that there is no loss of efficiency by friction. In fact, except for a possible slight resistance caused by the opening in the bottom of the boat, the installation is thoroughly as efficient as the usual rigid type. The hoisting rod is attached by means of trunnions to the stern bearing, and is heavy enough to act as a strut. When the fisherman approaches the shoaling water of the land wash, he draws the shaft up gradually, while the motor is running, until the propeller is entirely

(*Continued on page* 44)



View showing motor housed in and rod for drawing up shaft and propeller.



Shaft and propeller drawn up through the bottom of the boat, leaving the latter flush in order that the boat may be beached.

Propeller shaft and strut lowered into the position which they normally take when the boat is under way.

MARINE MOTORS

Northwestern Mogul.

A Compact, Heavy Duty Engine of Eighteen Horsepower Recently Brought Out. A Complete Lighting Equipment, Including Everything from a Storage Battery to a Searchlight.

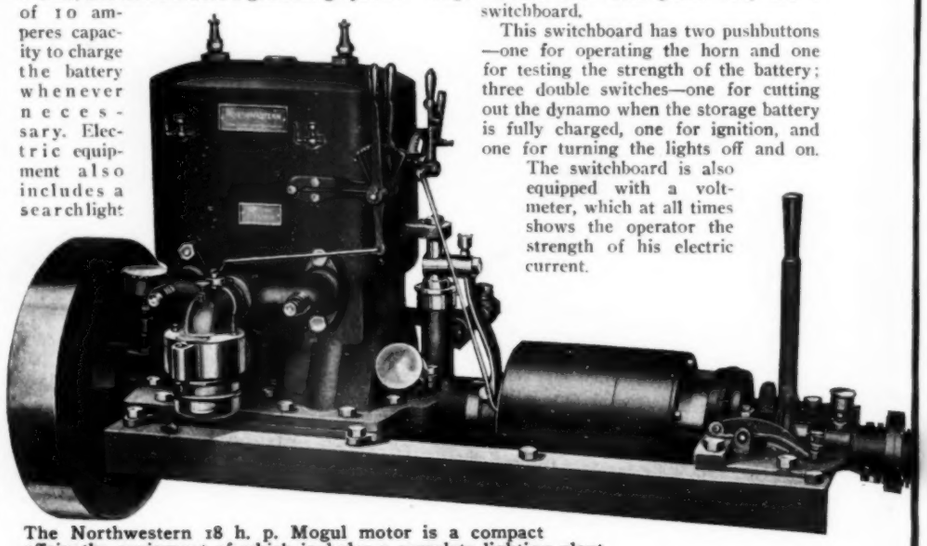
THE Northwestern Motor Company, of Eau Claire, Wis., have recently perfected a powerful, compact and reliable engine, which they rate at 18 horsepower. It is suitable for all classes of marine service, from a 20-foot runabout to a 40-foot cruiser.

Several special features have been given particular attention on this model, such as the controlling lever, whereby its speed may be regulated anywhere from 200 to 800 r.p.m. The engine is provided with an ingenious device which throws the spark to either spark plug when the engine is at rest, and it is claimed that this will start the engine without fail if there is a charge in either of the cylinders. A reversing lever is provided, by which the engine can be stopped or reversed either forward or backward similar to a steam engine. All of these levers are within a few inches of each other, making it convenient for the engineer to start, regulate or reverse the engine while facing forward, and, at the same time, be within easy reach of the reverse clutch when the latter is used.

The equipment includes the latest type of Planhard ball check carbureter, or, if preferred, a Schebler or Kingston will be furnished. The pump and water connections are all made of brass, as are likewise the shafting, stuffing boxes, stern bearings, etc.

The complete lighting equipment consists of a six-volt, 80-ampere-hour lighting battery sufficient to ignite the engine for a long period of time, and also includes a generating dynamo of 10 amperes capacity to charge the battery whenever necessary. Electric equipment also includes a searchlight of sufficient candlepower to show up the shore at considerable distance, a hand searchlight, a large electric horn with 5-inch bell, and a switchboard.

This switchboard has two pushbuttons—one for operating the horn and one for testing the strength of the battery; three double switches—one for cutting out the dynamo when the storage battery is fully charged, one for ignition, and one for turning the lights off and on. The switchboard is also equipped with a voltmeter, which at all times shows the operator the strength of his electric current.



The Northwestern 18 h. p. Mogul motor is a compact affair, the equipment of which includes a complete lighting plant.

Loew-Victor Six-Sixty.

A High-Grade Power Plant Suitable for Racing Boats and Large Runabouts. A Motor Which for Its Size Develops an Unusual Amount of Power.

THE Loew-Victor motor here illustrated is their Model 14, 60-h.p. engine, made in aluminum crankcase, and fitted with electric starting and lighting outfit. This motor develops its rated horsepower at 1,000 r.p.m., but can be turned at a speed of 1,600 r.p.m. without loss of torque; at this speed the motor develops 75 h.p.

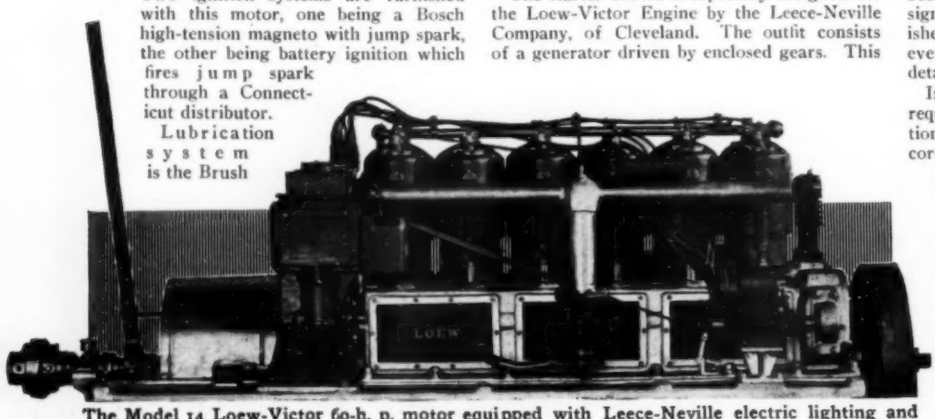
Cylinders are T-head, cast singly. Connecting rods and crankshafts are drop-forgings. Two ignition systems are furnished with this motor, one being a Bosch high-tension magneto with jump spark, the other being battery ignition which fires jump spark through a Connecticut distributor. Lubrication system is the Brush positive oiling system, and these motors are particularly economical in their consumption of lubricating oil. A Planhard carbureter furnishes the gas mixture through a water-jacketed manifold. The reverse gear used is the Snow & Petrelli multiple disc type. Water circulation is supplied by bronze gear pump. An air pump, capable of maintaining 60 pounds' pressure in the tank, is incorporated in the crankcase design.

The starter shown is especially designed for the Loew-Victor Engine by the Leece-Neville Company, of Cleveland. The outfit consists of a generator driven by enclosed gears. This generator stores a 24-volt, 50-ampere-hour Willard storage battery. The motor is mounted on the starboard side of the extension of the lower crankcase and drives the crankshaft through a silent chain. This motor spins the engine at a speed of about 115 r.p.m. This electric starting outfit is very compact, neat in appearance and absolutely silent in operation.

In the manufacture of the complete line of Loew-Victor Marine Motors, the object has been to place upon the market the best in design and construction, as well as the finest finished marine motor which the country has ever seen, and a machine complete in every detail.

In the machining of parts, limiting sizes are required, and every part used in the construction of the Loew-Victor motor is made according to its own individual blueprint, with its own limiting sizes, in thousandths of an inch.

All parts of these motors are manufactured with special tools and jigs, making each part an exact duplicate of every other of its kind. This enables the purchaser to obtain from stock at any time repair parts which are thoroughly interchangeable. The use of hammer, cold-chisel, file or scraper in the assembling room is not permitted. Every piece must fit without any hand work whatsoever. In the selection of material for the Loew-Victor, only quality governs the purchase.

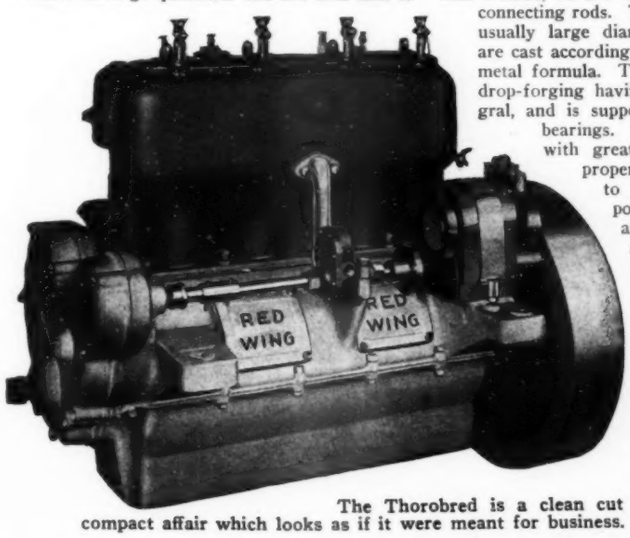


The Model 14 Loew-Victor 60-h. p. motor equipped with Leece-Neville electric lighting and starting outfit.

Red Wing Thorobred for 1914.

A New Lightweight, High Speed, 4-Cycle, 4-Cylinder Motor Which Has Plenty of Power to Spare. L-Head Cylinders Cast En Bloc, Making a Compact and Perfectly Aligned Machine.

ONE of the latest arrivals in the high-speed field of 1914 models is the Red Wing Thorobred. While the price of this motor is low, the makers, the Red Wing Motor Company, of Red Wing, Mich., state that there has been no sacrifice in design, construction or materials in order to bring this price down, but that they expect to make the motor in large quantities and are thus able to buy their supplies at better rates, and so reduce the cost to the consumer. This motor is a 4-cycle, 4-cylinder, L-head machine, with the cylinders cast en bloc, making it very compact, and insuring perfect alignment. The cylinder dimensions are 4 1/16" bore by 4½" stroke. A nickel steel crankshaft 2½ inches in diameter is used, and this shaft is a drop-forging, heat treated, as are also the I-beam section connecting rods. The bearings are of unusually large diameter and length, and are cast according to the S. A. E. babbitt metal formula. The camshaft is a single drop-forging having the cams cast integral, and is supported on three die-cast bearings. The cams are designed with great care, so as to give proper opening of the valves to secure the maximum power and yet be quiet, and all cams are ground and hardened to limits of one two-thousandth of an inch.



The Thorobred is a clean cut compact affair which looks as if it were meant for business.

The cylinders, pistons and rings are made from a special gray iron, and all cylinders are tested against water leak under a pressure of 250 pounds to the square inch. The cylinder bores are ground to micrometer dimensions, and this may also be said of the pistons and rings.

The valves are constructed of cold drawn, hardened steel stems to which are welded cast iron heads, which construction the makers have found to withstand warping tendencies most efficiently. The valves are of large diameter so as to give extremely free passage of the gases. Adjustment is provided to take up the play between the valves and the push rods to that degree which will give the greatest satisfaction. Cover plates are furnished to cover valve stems and springs, which add greatly to the quiet running of motor. Helical timing gears running in grease give quietness and long life to these parts. These gears are accurately cut on special gear-cutting machines, and all tested to a limit fixture to insure absolute accuracy.

The lubricating system is one of extreme simplicity, and, as worked out in this motor, attains a high degree of efficiency. It consists of a reservoir in the bottom of the oil pan from which the oil is pumped by a plunger pump to dipping troughs into which the connecting rods dip and carry the oil to the main crankshaft, camshaft, and connecting rod bearings, and also the cylinder walls and wrist pins.

Throughout, this motor has been designed with a view to compactness and simplicity, yet allowing the greatest degree of accessibility and provision for necessary adjustments to secure the highest degree of efficiency in operation. In every part there is evidence of extreme care in selecting material best suited for the service which it is called upon to perform.

Hall Heavy-Duty Engines.

Heavy-Duty, Slow Speed, Motors Whose Design Makes Them Really Get-At-Able. Arrangement of Main Bearings Permits of Adjustment While Engine Is Running.

THE Hall Gas Engine Co., of Bridesburg, Pa., specialize in making high-grade, heavy-duty, slow-speed engines, ranging in rated power from 6 to 100 h.p. The first consideration in designing these engines has been to make them real get-at-able machines, and their design has been so worked out that each part can be seen in operation, and any part can be removed and inspected without disturbing any other part. This design is built in two, four and six cylinders. The accompanying illustration is from a four-cylinder motor, and the following description is applicable to it and the two and six-cylinder machines as well.

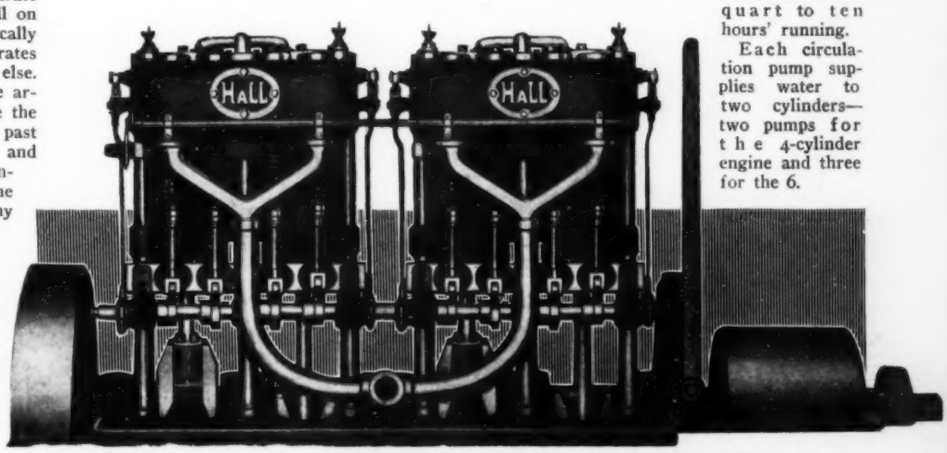
The cylinders are cast in pairs with separate heads over each cylinder and separate caps over each valve. The valves are all on one side of the engine and are all mechanically operated by a camshaft which also operates the igniters and air starter, but nothing else. The igniters are make-and-break and are arranged to explode the charge 45° before the crankpin reaches the top center and 125° past top center with intermediate positions, and they can be thrown out of operation entirely, making it possible to stop the engine without cutting off the electricity. Any type of ignition will be supplied in addition to the make-and-break igniters. A separate shaft on the opposite side of the motor operates water, bilge and air pumps. One of the features of this engine, which makes for sturdiness and strength, is found in the nickel-steel stanchions which support the cylinders on the base, passing from the base to the tops of the cylinders, through large lugs on the bottoms of the cylinders. All the strain of explosion is taken up on these stanchions, instead of allowing it to be taken up on cast-iron lugs at the bottoms of the cylinders as is customary. The main bearings are fitted with wedge and screw adjustment and all bearings are of bronze. Owing to the get-at-able nature of this engine bearing adjustments can be made while the engine is running. The connecting rods are steel forgings with bronze boxes, both upper and lower boxes being adjustable, with four studs at each end. The cams are of steel case-hardened, and, owing to an air-cushion lift, the operation of the valves is practically noiseless.

The intake pipe of brass from carbureter to cylinders connects directly under the intake valves, and, by this arrangement, the gas passes through the cylinder casting for the least possible distance.

The exhaust pipe passes from the valve side of the cylinders between them to the opposite side, and thence to the base, the pipe for this distance being water-jacketed. This design gives the engine a very long-jacketed exhaust pipe, which cools and shrinks the exhaust gases.

Lubrication is supplied by mechanical feed-pump oilers to all bearings. The oil is used until it is worn out, since after it is fed to the bearings it runs into the base where it is pumped to an oil filter in which it is strained and cooled, and thence back to the main supply tank. It is said that the consumption of oil is about one quart to ten hours' running.

Each circulation pump supplies water to two cylinders—two pumps for the 4-cylinder engine and three for the 6.



A Hall 4-cylinder engine, showing accessibility of bearings, valves, and all moving parts.

Devices & Stunts

[This department is to be a regular feature of MoToR BoatinG *in the future, and we ask our readers to send us photographs or sketches, preferably photographs, with descriptions (of no more than three or four hundred words) of unique devices for or improvements in their boats which they have made themselves or had made for them. We will pay $5.00 each for all items of this kind with the accompanying photographs or sketches which we use. The more who send in material the better we shall like it, and the better the department will be.*— THE EDITOR.]

A New Form of Strut.

A Design Which Distributes the Strains Subjected to Over a Large Area. Firmly Bolted to the Keel and a Cross Timber Socketed Into Cleats on the Chines.

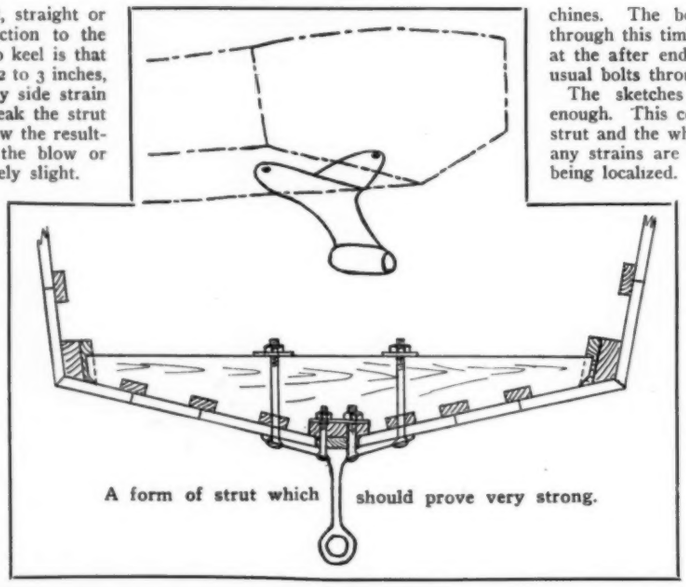
By Fred Sutter.

THE common forms of strut, straight or V, are familiar. The objection to the ordinary strut which bolts to keel is that its pad can seldom be wider than 2 to 3 inches, being the width of the keel. Any side strain tends to twist out the keel or break the strut bolts, and as the base is so narrow the resulting twist is severe, even when the blow or dragging of wheel is comparatively slight.

The V strut is open to the objection that it has no bearing on keel and an upward blow frequently drives the legs of the strut up through the planking. A side strain would tend to drive in one leg and pull the other one free.

The writer fitted a strut to a V-bottom boat this spring, which is free from both these objections, and which, by actual experience, demonstrated what it was good for.

The foot of strut, instead of being a flat pad, consists of two wings or palms which bear on the planking as shown. Inside of boat is a cross timber socketed into cleats on chines. The bolts at ends of wings pass through this timber. At the forward end and at the after end of the foot of strut are the usual bolts through keel and keelson.



A form of strut which should prove very strong.

The sketches will give the idea clearly enough. This construction binds together the strut and the whole after end of boat, so that any strains are widely distributed, instead of being localized.

We hit a stringer ten or twelve feet long and about 10 by 10, and the blow bent the strut nearly 2 inches out of line. The hanger was about 6 inches wide and ¾ inch thick, so that the force of the blow will be apparent. Nevertheless, not the slightest damage was done to the keel or planking, while I am satisfied the ordinary strut would have been put out of business either by being torn loose or keel splintered, or, in case of the V strut, completely crumpled up. One will thus see the importance of this.

Two Devices Which Help the Boat.

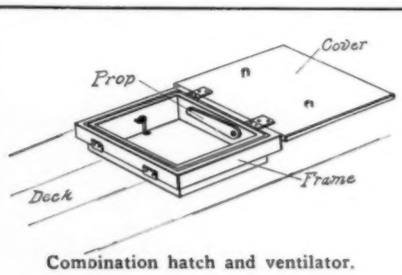
A Design for Improving the Appearance of a Boat in the Cockpit at the Bulkhead. Also a Combination Hatch and Ventilator for a Raised Deck Cruiser.

By W. W. B. & J. T. C.

TROUBLE is sometimes encountered by the amateur in giving a neat and finished appearance to his craft at the point where the cockpit staving is brought up to the bulkhead. This is due principally to the necessary bends in the capping.

In providing a self-bailing cockpit for our boat, we made use of a pair of double-curve wagon shafts, fitting them to the staving in the manner shown in Fig. 1, after cutting a rabbet by hand on the under side. This gave us a very strong construction and saved a great deal of bending. Another effect may be produced by cutting the curved portion of the shafts and combining them, as shown in Fig. 2. This, however, is not quite so satisfactory as the former arrangement. Shafts unfinished or "in the rough" should be used, though in some cases discarded shafts might be utilized.

A combination hatch and ventilator for a raised-deck cruiser is illustrated in the accompanying drawing. This has been on our craft for the past two seasons and has proved very satisfactory. The cover is hinged to a frame which, in turn, is hinged at the opposite side to the deck. The pivoted prop shown serves to hold both the cover and frame slightly raised, while a similar prop on the other side serves to support the cover only. By means of this device air may be deflected into the cabin or drawn out when the boat is under way, depending upon which prop is used.

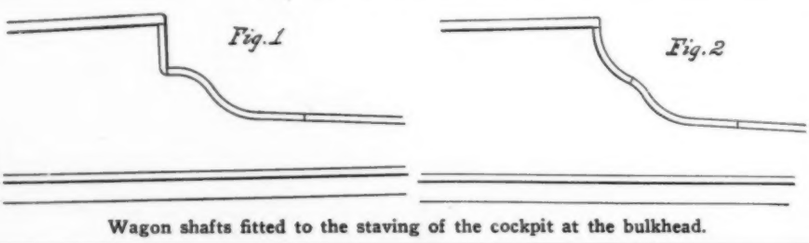


Combination hatch and ventilator.

It is also very useful when at anchor for accomplishing the same thing. Often times when lying to a mooring there is not sufficient breeze to swing the ship's head to it, especially in a tideway, and in such a case by raising the forward or after edge of the device, as the case may require, very good ventilation will result.

Care should be taken in fitting the combination hatch-ventilator to the deck that a thoroughly joint is made, one that will be strong as well as practically water tight.

A piece of plate glass might be set into the top of the ventilator for the purpose of supplying more light to the cabin, if desired, instead of building it with a solid top.



Wagon shafts fitted to the staving of the cockpit at the bulkhead.

The Salt Water Supply.

A Device for Considerably Lessening the Household Duties Aboard of a Boat. A Never Ending Supply of Water Useful for Many Purposes During the Cruise.

By E. W. Kendrick.

WATER SUPPLY, gentlemen, that's the thing this time and a very important thing, too, if you are one of the vast and ever increasing cruising crowd that spend so much summer time aboard.

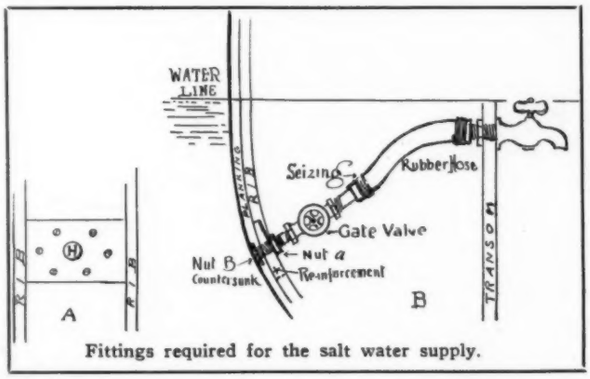
Of course, there are two kinds of water and a third that is neither here nor there. But fresh water and salt water are essential and in conservation of the fresh many would fain resort to the salt more often were it not for the awful fag of climbing over the cabin table, and out on deck and reaching way down over the side to get it.

Now we wash potatoes, boil potatoes, wash dishes and a dozen other things with salt water just because we've a bottomless tank tapped just beneath the water line. And here is how it's done:

Reinforce the planking as shown in sketch A with a piece of pine which has been well painted with white lead on the contact side. Bore the hole H through both pieces and set into it a nipple, threaded to allow of screwing a nut far enough along to rest as shown at A when the end of the pipe reaches the outside of the hull. Now by gouging out a gutter, another nut, B, may be screwed down till it is flush with the planking and the fixture is locked securely in place. The other connections are simple and are self explanatory if you will refer to the sketch.

We instituted a piece of rubber piping, which you will probably find it best to connect last as its pliability will forgive any slight inaccuracy in measurements, but don't forget to lead all joints well with white lead when making your connections.

This instalment will cost you just $2.65, 75 cents for the tap, $1.50 for the gate valve, 15 cents for hose and 25 cents for nuts and nipples. So if value received over cost of instalment is to be considered aboard a boat this little device must soar into the hundreds per cent. class; don't you think so? you will if you try.



Fittings required for the salt water supply.

Another alternative would be to lead the pipe line up to the galley sink and replace the faucet with an ordinary galley pump. This substitution would be necessary, of course, on account of the sink being located considerably above the water line. A few strokes of the pump will be all that is necessary to fill the sink, potato kettle or dish pan, and the many uses to which good, clean salt water can be put will be surprising.

In this method of installation the gate valve and faucet can be eliminated which will materially cut down on the cost of material, and not make it much more than when installed below the water line as described and illustrated.

The Auxiliary Air Valve.

A Method by Which the Power of the Motor May Be Appreciably Increased. A Device Which May Be Made at Home at Very Little Expense.

By G. F. Neuberger.

THIS is a very simple piece of mechanism and if made to the data furnished, will prove of great value to the builder. A very similar valve was used on a 27 x 7½' heavy cabin cruiser, equipped with a 2-cylinder, 2-cycle, 3-port, 4½" x 4½" motor.

The boat was timed on an 880' course with the throttle open and closed, and showed a difference of 6 seconds or 6/10 of a mile more per hour.

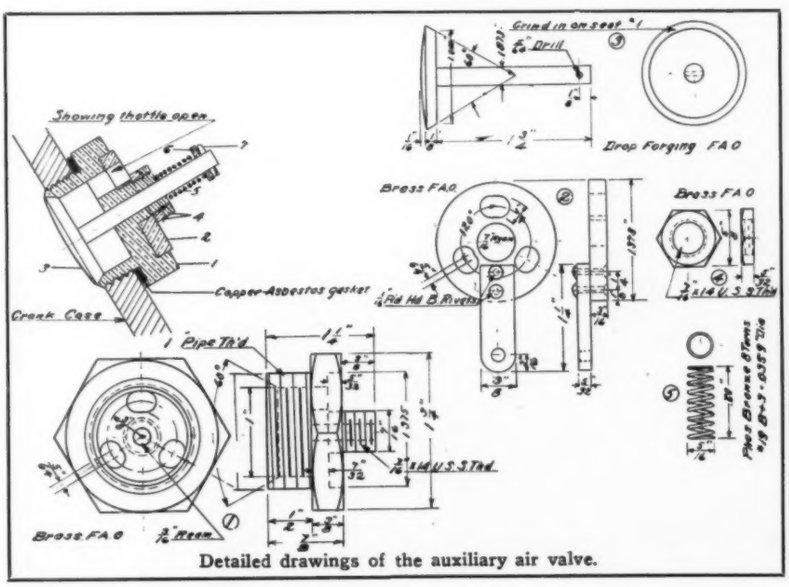
The body, No. 1, is made of 1¾" hexagonal brass bar turned to the given dimensions. The throttle, No. 2, is made of brass, and should have a clearance of .002" in diameter. The arm shown on No. 2 is used when two or more cylinder motors, equipped with these valves, to connect them together.

The valve stem, No. 3, is a "William" drop, forging No. A20, and should be ground into the valve seat in piece No. 1. The nuts, No. 4, are made of brass. Spring, No. 5, can be made from phosphor bronze spring wire .0359" diameter— B & S No. 19.

Make the spring with 8 turns in .60". The washer, No. 6, is a standard brass or copper with a 3/16 hole. No. 7 is a standard brass cotter pin 1/16" x ½".

These numbers all refer to the drawing at the upper left hand corner of the sketch, which shows the auxiliary air valve assembled and complete. A detailed drawing of each important part is also shown which will make the construction all the more clear and will enable an amateur with a little care and patience to easily construct the valve.

It is hardly necessary to give any detailed description of the object and use of the auxiliary air valve. Of course, it can be applied to only two-cycle motors which have an enclosed crank case. It is generally placed on the hand hole plate on the side of the motor opposite the carbureter. On multi-cylinder motors, one valve is used for each cylinder, and these are oftentimes connected together so that all cylinders can be regulated and adjusted together and by the same amount. This practice is not always the best, for very often the most satisfactory results can be obtained by adjusting each cylinder separately. This is especially true with motors having three cylinders in which the inlet manifold is so designed that it does not allow the correct amount of mixture to reach each cylinder before condensation sets in. In such an installation, by a little experimenting in the amount of lift to give the valve, the revolutions per minute can be increased quite considerably over what it would be with a constant lift in the valve on each cylinder.



Detailed drawings of the auxiliary air valve.

At the time of starting, especially in cold weather, when vaporization does not take place as readily as when the motor has warmed up, the air valves should be kept closed and opened gradually as the motor comes up to speed.

Another use to which the auxiliary air valve may be put is a means of lubricating the crank pin and supplying oil to the base of the motor. The suction through the valve is utilized for this.

AMONG the CLUBS

At the New York Athletic Club, just before the start of the ocean race to Block Island.

Election of Officers.

At a recent meeting of the Pacific Motor Boat Club of Belvedere, California, the following officers were elected for the ensuing year: Commodore, F. W. Kelly; Vice-Commodore, Chas. H. Crocker; Rear-Commodore, H. W. Tuckey; Treas., J. H. Kelly; Secretary, W. S. Hegar. Directors: H. P. Dimond, Arthur Page and Hago D. Keil.

• • •

City Island Celebrations.

The City Island Yacht Club of City Island, N. Y., recently celebrated the closing of its seventh and most successful season when the members participated in an old-fashioned Rhode Island clambake which was served at the club's new home. Following the attentions to the inner man, Commodore T. Kaufer distributed the season's prizes accompanied by many long and humorous talks on how and why they were won, after which the members and their guests took part in a most enjoyable dance, the music being furnished by the City Island Yacht Club string orchestra.

• • •

Broad Channel Election.

After a very successful and entertaining Turkey Dinner given by the Broad Channel Yacht Club in its new clubhouse at Broad Channel, Jamaica Bay, officers were elected for the year 1914: Commodore, Charles Hasloecher; Vice-Commodore, J. B. Read; Rear-Commodore, Albert Wunder; Fleet Captain, George Hessler; Secretary, Edward V. Moore; Financial Secretary, Harry Birchard; Treasurer, G. C. Rath; Sergeant-at-Arms, J. Clapp; Assistant Sergeant-at-Arms, E. J. Peterson.

• • •

Morris Yacht Club Ball.

The annual ball of the Morris Yacht Club, of Pelham Bay Park, N. Y., was held on November 29th. The affair, one of the biggest yachting events of the year, was attended by a large crowd, including a delegation from the Waterways League of Greater New York and Long Island, and from all the Long Island and Hudson River yacht and motor boat clubs. A feature of the evening was the presentation of the regatta prizes for 1913.

• • •

Jeffersonville Doings.

The Jeffersonville Motor Boat Club of Jeffersonville, Ind., elected the following officers for the coming year: Commodore, John H. McManus; Vice-Commodore, William Voiers; Secretary and Treasurer, Clifton Gibbert. Arrangements are being made to join the Mississippi Power Boat Association so as to make this port a factor in national motor boat racing.

• • •

Colonial Yacht Club Election.

The annual meeting of the Colonial Yacht Club was held December 11th at the clubhouse, 140th Street and the Hudson River. The election of officers resulted as follows: Commodore, A. J. Baker; Vice-Commodore, J. B. Bashore; Rear-Commodore, Edward L. Mahnken; Recording Secretary, George H. Savage; Financial Secretary, Fred Meert; Treasurer, Howard Georgia.

• • •

Red Bank Motor Boat Club Dinner.

The second annual banquet of the Red Bank Motor Boat Club was held at the Globe Hotel, Red Bank, Thursday evening, December 11, 1913. The affair was largely attended and well-known motor boat men were speakers. Plans for next season were tentatively arranged, and it developed in the course of the dinner that many of the members were planning or building new boats for the summer races.

Metropolitan Yacht Club Reception and Ball.

At McKinley Square Casino Saturday evening the Metropolitan Yacht Club hald their tenth annual reception and ball, which was voted by all present the most successful affair of the season. The attendance was estimated at fourteen hundred. All the members and their friends enjoyed a very pleasant evening.

The officers of the club are: George Chadwick, Commodore; R. Spittle, Vice-Commodore; J. B. Kaufer, Rear-Commodore; George Oakes, Treasurer; John Lavery, Financial Secretary; S. Baberfall, Recording Secretary; John Gallagher, Chairman House Committee; Joseph R. Kielt, Chairman of Entertainments; George Harrison, Chairman of Regattas.

The Metropolitan Yacht Club, with clubhouse and anchorage at Pelham Bay Park, is a member of the Waterway League of New York and Long Island. This league has been working with untiring efforts to improve the waterways of New York and Long Island Sound, by having the driftwood collected and disposed of, by having obstructions removed or marked to prevent disasters on the waters. Its most important object, however, is to keep our waters clean and free from disease germs by having new laws enacted to dispose of sewage in some other way than having the sewers empty into our rivers and bays.

• • •

Announcement of D. R. Y. R. A. Run.

The Delaware River Yacht Racing Association has announced that it will hold a long-distance race from Philadelphia to Baltimore, starting July 22, 1914. The course will be down the Delaware to the ocean, thence to Cape Charles and thence to Baltimore, a total distance of about 380 miles.

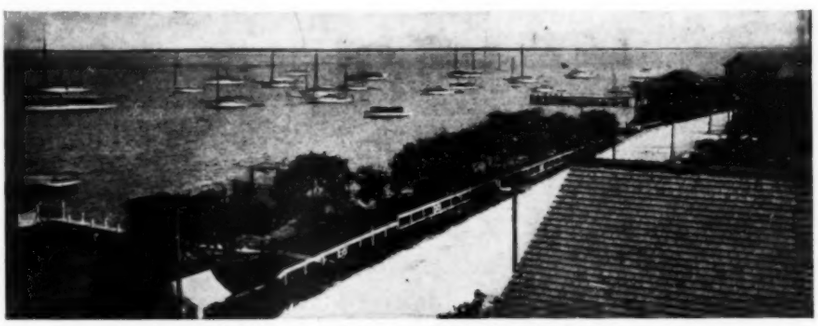
Although the announcement has just been made, there are four entries: Marguerite II, A. B. Cartledge; Caliph, M. E. Brigham; Casino, William Erb, and Eugenia, Dr. Eugene Swayne.

It is expected that there will be a large number of entries because of the advantages of such a course. There will be but about 110 miles of ocean work, but, perhaps, the greatest advantage will be that the yachtsmen when they finish will be but a short distance from their home waters and those who are in a hurry can go through the Chesapeake and Delaware canal, making the run from Baltimore to Philadelphia in one day.

• • •

E. G. Y. C. Elects Officers.

At a recent meeting of the East Greenwich Yacht Club the following officers were elected for the ensuing year: For Commodore, Mr. L. W. Dugdale; for Vice-Commodore, Mr. L. D. Pierce; for Rear Commodore, Mr. Nelson McIntosh; for Secretary, Mr. F. S. Nock, and for Treasurer, Mr. Alexander McCabe. The following were named trustees: Messrs. L. W. Dugdale, H. E. Allen, L. D. Pierce, Nelson McIntosh, F. S. Nock, Alexander McCabe, and George Dickson.



A winter scene at Biscayne Bay, Miami, Florida.

The club is in good condition financially and prospects for plenty of races next season are in view.

• • •

Albany Yacht Club Meeting.

The annual election for offices in the Albany Yacht Club was held recently and the following men were named for the season of 1914: Commodore, C. R. Butler; Vice-Commodore, W. L. Martin; Secretary, C. J. Hailes; Fleet Surgeon, Dr. C. H. Boughton, and Official Measurer, Geo. C. DuBois were re-elected, while Messrs. Percy Redick and G. C. Hisgen were elected respectively for the offices of Rear Commodore and Treasurer. Messrs. F. P. Huested, E. A. Barvoets, and J. I. Wiley will comprise the board of governors for the next two years. The annual cruise of this club last August was a very successful one, twelve boats being in the fleet that left the A. Y. C., going as far as Watch Hill, R. I., stopping at numerous points on the Hudson and Long Island Sound, and returning two weeks later.

• • •

First Annual Meeting of the Fairmount Park Yacht Club, Philadelphia.

At the first annual meeting of the Fairmount Park Yacht Club, which was held in their temporary quarters, 33rd St. and Columbia Ave., recently, the following officers were elected: E. C. Johnson, Commodore; Dr. Eugene Swayne, Vice-Commodore; A. F. Lineker, Rear Commodore; C. E. Carpenter, Secretary; Chas. A. Jann, Financial Secretary; W. J. Craig, Treasurer, and J. B. Yarnall, Fleet Captain. Directors: Geo. F. Goldsmith, B. H. Moore, Leonard Lineker, L. J. Sommers, O. S. Carter, H. M. Zaner. At this time twenty-one members were also enrolled.

This is probably the youngest club of its kind in the country, but since September 25th, at which time Commodore E. C. Johnson called a meeting for its organization, it has shown rapid advancement, and can now demonstrate the many advantages, which will more than offset the annual dues, for boat owners to become identified with this club.

They have already made application for membership with the Delaware River Yacht Racing Association and the American Power Boat Association, and application for a charter will be made in the very near future.

• • •

Dr. Street Entertains Camden Club.

Dr. Chris Street, the popular navigator, author, lecturer, dentist, etc., entertained a company that comfortably filled the home of the Camden Motor Boat Club recently with a lecture, "Motor Boat Hash," being a rehash of many of his and others' experiences in the big races during recent years, including the Bermuda and Havana events. "Movy" reels and set pictures of famous boats illuminated the talk from start to finish. A proposition to stage a motor boat tug of war between the boats Chelwood, Casino, and Jennie S., pulling against Marie W. Haji and Wauchusetts, created a good deal of amusement.

Home of the City Island Yacht Club, City Island, New York City.

From Motor Boating Readers

A Department for the Exchange of Ideas and the Discussion of Questions of General Interest. Editorial Opinion on a Number of Questions Submitted by Readers of the Magazine.

MoToR BoatinG's *columns are open to its readers, not only for asking questions, but for placing before them other readers' ideas, results of experience, opinions, etc., that should be interesting or helpful to them; but the editor will not, of course, be responsible for any opinions expressed or statements made in such communications. The name and address of the writer must necessarily be given in every case to make answer by mail possible (no anonymous contributions will be considered for publication), but names will be omitted in publishing the letters and answers where desired, in which case it is desirable that initials or other distinguishing signature be appended. Through the correspondence department, readers of the magazine may be of direct aid to one another in solving the problems of motor boating.*

Yachting Etiquette.

To the Editor of MoToR BoatinG, *Sir:*

I have your chart, published several months ago, entitled "Flags and Where to Fly Them." It, however, does not fit my particular case. I have a 50-ft. cruiser with one signal mast, having yard. I fly club pennant at the bow staff, ensign at stern and individual flag at the mast head.

I have just had the honor to be elected commodore of our club. Where shall I fly my official flag? If at the mast head, shall I discontinue the practice of my individual flag while in office? It has been the practice of preceding officers of our club to fly the commodore's flag at the starboard yard arm, but I do not wish to follow this practice, unless it is quite correct, as our summer cruises take us to the Mare Island Navy Yard quite often.

Also, what would be the proper salute when meeting a U. S. ship of war and how should it be given?

When using International Code Flags to dress ship, how do they read? That is from top of mast down either way, or from bow up and then down?

Also, is the use of a cannon for saluting purposes permissible on a motor cruiser, and how should it be used? That is, meeting a member of a club, not an officer, what would be his due, and what would be due an officer of our own or another club?

O. L. B., California.

[The best practice does not permit a flag officer of a club to fly his private signal during his term of office, unless he is on a cruise of another club, of which he is a member but not an officer. There is no need of flying the private flag if you are a flag officer, because your club signal and commodore's flag is enough to distinguish your boat and rank without further marks of identification. In some places it is the practice to fly the officer's flag from the starboard spreader, but this is decidedly bad practice and should not be followed.

The proper salute upon meeting a naval vessel of your own or any other friendly country is by dipping your ensign once.

The international code used to dress ship is not read at all. These flags are used simply for decorative purposes and have no meaning whatsoever as far as any code is concerned. They are generally arranged in a way which will be more or less pleasing to the eye, spacing the pennants and rectangular flags alternately.

The use of a cannon on a motor boat for saluting purposes is permissible as follows, on weekdays only: Upon entering the harbor the captain should salute the commanding officer of the anchorage by firing one gun at the time the anchor is dropped; a salute to be made to a yacht entering a port and entitled to a salute consists of the firing of a gun when the arriving yacht drops her anchor; on the occasion of the commodore entering a harbor to assume personal command of his squadron, he should be saluted on coming to anchor by each yacht of the squadron, which salute should be acknowledged by the firing of one gun by the flagship. On ordinary occasions when the commodore's yacht enters a harbor his flag should only be saluted with one gun from the yacht of the senior officer of such club present, and this salute should be acknowledged in kind by the commodore. When the junior flag officer's yacht enters the harbor his flag should be saluted when his yacht comes to anchor by one gun from the yacht of the senior officer present, provided the latter is inferior in rank to the arriving flag officer; otherwise the arriving officer will salute the flag of the officer in command of the anchorage with one gun when his yacht drops anchor.

When the senior officer leaves a harbor, he should indicate that he has transferred his command to the officer next below him in rank, by firing a gun upon getting under way.

There are a few other occasions upon which a gun is used, such as when a flag officer makes an official visit, salutes to other clubs, etc., but these are rarely used, and we do not think it necessary to go into detail. It is hardly necessary to state that all of the above applies only to the time between colors in the morning and sunset.]

Horse Power Ratings.

To the Editor of MoToR BoatinG, *Sir:*

I would like to have you enlighten my mind on the following questions: In reading the size of the bore and stroke of a marine engine compared with that of an auto engine, why does the marine engine have to have such a large bore and stroke and such a comparatively low horsepower, compared with the automobile engine?

I have an automobile engine in excellent condition. Could I use it in a 36-foot boat? It is rated at 30 horsepower, A. L. A. M. rating.

W. F., Hayward, Cal.

[This is due entirely to the different number of revolutions at which each develops its power. There are three factors which determine, approximately, the horsepower of a motor, and these are bore, stroke and number of revolutions per minute. You will see that if the number of revolutions is large, then, to obtain a given horsepower, the bore and stroke dimensions may both be correspondingly smaller than if the r.p.m. are low. In other words, if you have a motor of 4 inches bore and 5 inches stroke, which develops 30 horsepower at 2,000 r.p.m., and another motor which develops the same horsepower at 500 r.p.m., then the dimensions of the latter, instead of being 4 x 5, will have to be 5 x 6, or even larger, in order to develop the same power at 500 r.p.m. This explains why the automobile engine is of smaller dimensions than the marine engine.

High speeds are all right in automobile practice, but all wrong in marine practice, as far as the average cruiser or open boat goes. It is not economical to turn an engine in these types of boats up much over 700 or 800 r.p.m., and in the heavier boats the r.p.m. should be kept at a much lower figure. In light speed boats or runabouts, it is sometimes feasible to use a higher r.p.m. value, and in this case the automobile engine will work in fairly well, although there are many things which should be taken into consideration before choosing a motor of this type. Some of these points are taken up on page 43 of the July issue of MoToR BoatinG, and we would suggest that you read these over carefully before installing your motor.]

Hull for a Particular Motor.

To the Editor of MoToR BoatinG, *Sir:*

As a reader of MoToR BoatinG I apply to you for some of your valuable information. I have a 6-cylinder, 3¾ in. bore by 4 in. stroke motor, at about 1,200 r.p.m., weighs about 400 lbs. I would like to know what sort of a boat and size would develop 13 to 15 miles per hour with this motor, and also being able to stand some rough water. Also please advise me what propeller to use.

O. G., New York City.

[You do not state whether your motor is of a two or four-cycle type, or anything about its condition or design, therefore, it is rather hard for us to give you a very close approximation as to what type of boat would work out best for this particular motor. If it is of a two-cycle type, in good condition, and of good design and will develop its power at 1,200 r.p.m., we believe you should get in the neighborhood of 40 horsepower out of this motor. A motor of this power should drive a hull 28 feet long and a little over 5 feet beam at about 15 miles an hour, if the hull is not built too heavily, and the motor is able to stand up to this kind of service. When we say "too heavily," we are taking into consideration your statement that you desire it to be able to stand some rough water.

For the proper wheel for this combination, we would suggest one having three blades 17 inches in diameter by 20 inches pitch.]

Power for an Auxiliary.

To the Editor of MoToR BoatinG, *Sir:*

I have a 29-foot yawl over all, 9 foot beam, 21 feet water line, draught 18 inches (without centerboard) spoon bow.

At present I have a 3 h.p. engine as auxiliary. This engine drives her 6 miles an hour in smooth water, but will barely hold her in a heavy wind. What would be the best size engine, from points of economy and speed, to equip her with. What would be the best screw, diameter and pitch? What speed would I likely get with a 12 h.p. motor and what screw should I use if the engine is suitable?

I have thought of converting her into a regular motor boat, but am afraid I cannot get sufficient speed out of her without too great expense and increase of vibration. I would be quite satisfied if I could get 9 or 10 miles out of her.

M. McM., Toronto.

[A speed of 9 or 10 miles an hour is decidedly out of proportion for a boat which has the characteristics of an ordinary yawl. That is, if you mean 9 or 10 real miles per hour. Of course, you realize there are more 10-mile boats making only 6 or 7 miles per hour than those which actually go 10 miles.

For a speed of 9 miles per hour, you would need at least 25 h.p., and for 10 miles an hour, 35 h.p., especially if the boat is of heavy construction.

Our advice would be to be content with a speed of, say, 7 miles an hour, and even then we believe you will be surprised at the number of boats you will be able to pass when under way. For this speed a motor of 12 to 15 h.p. will work in very nicely, and one of either the two-cycle or four-cycle type may be chosen, depending upon your own preference. If it is of the former type, we would suggest one of two cylinders, and if of the latter type, either two or more cylinders will work out very nicely.

We cannot advise you as to the proper propeller, diameter and pitch, as this depends entirely upon the power of the motor which you choose, and the revolutions at which it is designed to develop its power at.]

Changing Position of Motor.

To the Editor of MoToR BoatinG, *Sir:*

I have a 20 ft. by 4 ft. canoe construction speed boat, in which I have a three-cylinder, two-cycle 3¼ by 3½ motor which turns at about 600 r.p.m. I am getting 15 miles an hour, but wish more speed, so am thinking of installing a three-cylinder, two-cycle, 4½ by 4½ motor, which turns at 1,200 r.m.p. This motor weighs about 300 lbs., which is about 70 lbs. more than my old motor. Would you advise installing this one further forward than my old motor, in order to avoid drag with the higher powered motor? At present my boat rises a little at the bow when running, but does not seem to drag at the stern and leaves a very clean wake. The boat has very good lines, a sharp bow, broadening out gradually and attaining the greatest beam a little forward of midships and running back to the stern very straight. Her bottom is almost flat from amidships aft. I would like to know what speed I might expect with this larger motor. Also what propeller you would advise.

W. L. H., Princeton, N. J.

[We take it from your description of this boat that she is very lightly constructed, for 15 miles an hour is certainly very good speed with a motor which develops only 9 h.p.

For the larger motor on this same basis we should expect a speed of about 22 miles an hour at 1,200 r.p.m., and a proper wheel would be one of 3 blades, 17 inches in diameter by 27 inches pitch.

As to whether it would be well to move the new motor further forward or not, we are not able to say, as you have not sent us information enough to allow us to decide this point. You have not even stated where the present motor is located, but, offhand, judging from what you say about only a small change of trim and a good clean wake at present, we do not believe much change in position of the motor would be necessary, especially if the lines are rather full aft.]

How Fast Can a Boat Go?

To the Editor of MoToR BoatinG, *Sir:*

I am one of your many enthusiastic readers and would like to have you enlighten me about a few questions. (1) What is the fastest American boat today? (2) Which is the faster, "Ankle Deep" or "Dixie IV?" (3) Did the steam yacht "Arrow" ever really make forty miles per hour? Where has she been for the last few years?

R. H. R., Peekskill, N. Y.

[As to which is the fastest American boat to-day, it is a hard thing to say, as there is no absolute way of determining this fact, as there is no governing body to tell us which records we must accept as official, and which must be rejected as mere newspaper talk. We hear reports of 50-milers, and sometimes 60-milers, but when it comes to an actual show-down in a race, these speeds are conspicuous by their absence.

In 1912, a boat named Baby Reliance III, a 20-footer, powered with a 300-h.p. motor, did one mile down stream on the Mississippi River at the rate of 53.7 miles an hour, being timed by competent officials. However, she has never been able to repeat this performance, or favorably compare with it in competition with other boats.

This year, Oregon Kid, a 20-footer, with 125-h.p. motor, has been doing about the fastest speeds in competition of any which we have record of. In several races she has averaged about 43 miles an hour for an entire race, and 47 and 48 miles an hour for short stretches.

As to which is the faster, Ankle Deep or Dixie IV, the former's fastest speed in a race has been about 45 miles an hour, and a trifle over 47 miles an hour dashes with and against the tide. The best Dixie IV ever did was 40.5 miles an hour in a race and 45.5 miles an hour in mile trials.

As to whether the steam yacht, Arrow, ever made 40 miles an hour, we are not able to say, with authority. This year she has been in commission as flagship of the Atlantic Yacht Club, being chartered by Commodore J. Stuart Blackton.]

Motor Out of Line.

To the Editor of MoToR BoatinG, *Sir:*

I have installed a 5 h.p. 2-cylinder engine in my 21 x 7 boat, using an 18 x 18 wheel. While uncoupled engine runs fine, even if cold. When coupled up, nothing doing at all. Shaft is perfectly true, base is sound, spark good, paints new and flow of gasoline O. K. I get a good compression and that's all. This engine is practically brand new, having run but 75 miles in another boat, is in A-1 condition and should run. Would you advise where you think the trouble lies and what it is. Any suggestions you will make shall be appreciated.

W. D. N., Charleston, S. C.

[It is rather hard for us to diagnose the above trouble, as we believe you naturally would have tried out the suggestions which we would offer. However, offhand, we would say that it is our opinion that the trouble lies in the alignment between the propeller shaft and the engine, or some friction between the propeller shaft and the shaft log or deadwood. In a motor of this size it takes only the slightest friction to produce the trouble which you are having. So small a one, in fact, that you will not be able to detect it by turning the fly-wheel over by hand, but it will be enough to prevent the motor starting under load.

If you cannot make yourself believe that the engine and shaft are out of line by inspection of the sleeve or flange coupling, as the case may be, where the two are joined, try loosening up on the lag bolts, which hold the base of the engine to its bed, and see if the engine will run when it is in this condition. The motor may have been lined up when the boat was out of the water, as is very often the case, and, as all hulls change their shape more or less after they have been put overboard, this may have been enough, in your case, to cause the trouble.

Try reaming out the shaft hole with a red hot iron, keeping it in motion to burn off all the high spots which may be bearing against the propeller shaft. Shaft holes are much smaller when the boat is overboard than when she is dried out on land.

Another suggestion we would make, if all of the above are of no avail, is to loosen up the lag bolts on your stuffing boxes temporarily, and this will also tend to produce a better alignment.

If you are not using a reverse gear, then, by installing one, will probably overcome your difficulties, as a motor as small as yours does not begin to develop its power until it has accelerated to several hundred r.p.m., and if the reverse gear is used between the engine and propeller shaft, you will not need to apply the load until the motor is up to speed.]

Various Efficiencies.

To the Editor of MoToR BoatinG, *Sir:*

Your answer to the following will be appreciated: I am interested in two marine motors, one a 10-horse, 2-cycle, single-cylinder, and the other a 12-horse, 2-cylinder. I have been told that the former, on an 8-hour run, consumes 10 gallons of gas, while the latter uses that amount of gas on a 4-four run. Is this possible? Does a 2-cylinder use more gas for the same power than a 1-cylinder? Would a 3-cylinder, 5 x 5, 2-cycle, use more gas running at 400 r.p.m. than a 1-cylinder developing the same power? If it does, what is the reason?

W. M. K., Springfield, So. Dakota.

[Theoretically, of course, there may be no reason why a 3-cylinder motor should use more fuel than a single-cylinder motor of the same power, provided each has been correctly designed for its particular service. Practically, however, there are so many external features entering into the power developed by a gasoline motor, which the designer or manufacturer has no control over, which would tend to make them appear that they were developing their power at different rates of fuel economy.

For example: The carbureters on two motors, which would normally develop the same amount of power on the same fuel consumption, might be so adjusted that while they still developed the same total horsepower, yet one would be using perhaps twice as much fuel as the other. The same is equally true in regard to the proper propeller, and an error in this respect might also result in a hundred per cent. difference in power developed at the propeller. Again, a motor designed to develop a given horsepower at a speed suitable for runabout or speed boat service, if placed in a heavy cruiser, might only develop one-half the power for which it was designed, yet would probably use fully as much gasoline per hour of running.

Your example of a 3-cylinder motor, 5 in. by 5 in., compared with one of the same power, but of only one cylinder can hardly be taken as a fair case, for in the former instance it would probably be a high-speed motor suitable for a light boat, while in the latter case it would necessarily have to be a heavy-duty motor suitable only for cruiser work. One will see that the two examples are not interchangeable, but if each motor were placed in the type of boat for which it was designed, as mentioned above, then there is no reason to believe that the two would not develop their power at approximately the same fuel consumption. However, if they were used in the same hull there would be a decidedly different rate of fuel consumption without doubt.

Propeller for 1200 R.P.M.

To the Editor of MoToR *BoatinG, Sir:*

I would like to ask what propeller is best suited for my boat—open model, 23 feet x 36 inch beam, oak lined and decked. Weight of boat, engine piping, etc., is about 1,500-1,600 pounds, standing still boat draws 13 inches water at bow, and 3 inches water at stern. Engine is a two-cylinder Vim, 18 H. P., 1911 model, extreme high speed, rated 1,300 R. P. M., 5 inch bore and 5 inch stroke, 2½ inch open exhaust, two-cycle with two carburetors. I am at present averaging on Ohio River 15 miles per hour, turning an 18 inch x 24 inch pitch 3-blade bronze wheel. By getting, say, the balance of the revolutions to make 1,100 to 1,200 R. P. M. a minute, with a different wheel, would it give me more speed? As you see I have lots of reserve power and am getting no good of it. The enthusiasts here all say I should try a 16 inch x 30 inch pitch wheel. If so, what style wheel would you advise? Also will a low tension 6 to 8 Volt Magneto with two Phaustiel coils operate this satisfactorily at 1,200 R. P. M.? Engine is amidship of the hull.

J. A. D., Cincinnati, Ohio.

[We would advise one of 16 inches in diameter by 20 inch pitch, having two elliptical blades and a total blade area of approximately 55 square inches, which we believe you should be able to turn up between 1,100 and 1,200 r.p.m.

As to whether your low tension magneto will work with your two coils in a satisfactory manner, this is a question we cannot answer off hand, as it all depends upon the particular magneto and the particular coils. Generally speaking low tension magnetos will operate satisfactorily in connection with this type of coil; but not knowing more about the magneto we cannot advise definitely and would recommend that you try it out yourself, as this is probably the most satisfactory method of procedure.]

Proper Strength for Hull

To the Editor of MoToR BoatinG, *Sir:*

I have been a subscriber to your publication for a year or more and find it a very interesting and instructive paper. The questions and answers I find very instructive, but there are a few questions which I wish you would inform me on. I am building a knock down boat 30 feet long, 90 inch beam, ¾ cabin, compromise stern, and I would like a know just how much power she will need to make a good all round boat not too slow. What size and pitch of propeller should I have for the boat and engine. Also I would like to know how the tonnage of a boat is figured by United States inspectors, and where I can get information as to the necessary strength of timbers and parts of small boats so that they will conform to the rules of the inspection department of the United States. The ribs in this boat are 1 inch x ⅞ inch, spaced 10 inches on centers, and I have been told there that they are too light to pass inspectors. I supposed that the designers knew their business and would not send out anything that was not up to Government requirements. Enclosed you will find a stamp for replying to this, and trusting you will answer soon, I remain,

L. E. T., Laguna Beach, California.

[The amount of power to equip her with is more a matter of personal preference than anything else. 15 h.p in a boat of this size would be about the minimum power and should give you a speed of about 8 miles per hour. While 25 h.p. would be the maximum for efficient propulsion, and would probably give you a speed of close to 10 miles an hour without difficulty.

It is impossible to advise you as to the diameter and pitch of propeller, as this all depends upon the engine which you choose, its power and number of revolutions. You will realize, for example, that a 20 h.p. motor, turning 350 to 400 r.p.m. will require an entirely different wheel than a motor of the same power turning 700 or 800 revolutions per minute. So if you will advise as to these points, we will be pleased to recommend a propeller.

If you will apply to the Custom House, San Francisco, they will forward you literature, explaining how the tonnage of a boat is figured by the United States Inspectors. We do not believe you need to worry about the necessary strength of timbers and the parts of small boats in order that they will conform to the rules of the United States Government, as boats of that size are not subject to inspection by the Government.]

Finding Position of Waterline.

To the Editor of MoToR BoatinG, *Sir:*

Will you please inform me where I can get the information of figuring out how a motor boat will set in the water after the engine is put into it.

I have built a motor boat and have deviated from the original plans I got from a boat company, in as much as I made the boat longer and narrower than specified. The engine is to go up in the front of the boat with hatch covers over it. The hull is completed, but I have not finished up the engine compartment or interior of boat yet, as my friends who are interested in the boat think that if I put the engine as far forward in the boat as originally designed, that the boat as I made it will have a tendency to dip down and not ride the sea, as a boat of this sort should, so I am writing to you so I can figure it out, and have things right before the boat is launched next spring. I am capable of figuring this out mathematically, if I can get some information as to how to go about it.

J. J. M., Syracuse, N. Y.

[This is a very difficult and complex procedure, and involves such functions as area of the various waterplanes, center of gravity, center of buoyancy, metacenters, etc., and so on, and for an explanation of this work we would advise you to consult some book on Theoretical Naval Architecture, such as "Atwood's Theoretical Naval Architecture." Your case is further complexed by the fact that you have not built your boat from the original lines, and unless you have worked out a new set of lines for her under-body, it will be practically impossible for you to obtain her trim theoretically.

If you had followed the original lines, but simply wished to determine what effect in trim a certain change in the position of the motor would make, then this could be found approximately by the following formula:

Moment to cause 1" change in trim $= .4\ A^2 \div B$

where A = the area of the waterplane in square feet and B = the maximum beam of the waterplane.

For example, suppose the area of the waterplane of your boat is 50 square feet, and its beam 5 feet, then the moment to effect one inch change in trim at the bow will be 200 foot-pounds. This means, if your motor weighs 400 pounds, then every 6 inches that you move it toward the bow, will cause the bow to go one inch deeper in the water, or two inches deeper for every foot further forward you move your 400-pound motor.

A.P.B.A. Racing Rules for 1914.

THE most important change in the American Power Boat Association Racing Rules for the coming season from those used in the past is the change in the formula for determining the horsepower of internal combustion motors. As will be remembered, there were four formulas used previous to 1914 for this purpose, depending upon whether the engine was of two or four-stroke type and whether the length of the stroke was greater or less than six inches.

For 1914, the rules do not provide any change of formula between those engines having a stroke of less than six inches and those of more than six inches, or, in other words, there is no discrimination between the long-stroke and short-stroke motors. In the future a motor of 8 inches stroke will rate twice that of one having a four-inch stroke, the bore, of course, being the same in both cases. This will materially change the ratings of many boats having engines with strokes of over six inches.

In the four-cycle motors of less than six inches stroke, there is no change in the horsepower ratings, so boats with this type of motor will rate the same in the future as in the past. For those having a stroke of over six inches, the formula makes the rating go up in a straight-line curve, depending upon the length of the stroke, continuing from the upper limit of the old formula for four-cycle motors of less than 6" stroke.

In two-cycle practice there is a change from the old rule, both above and below six-inch stroke. Previously for motors of less than 6" stroke, in the "racing class" of boats, the formula was: H.P. = (Area of Piston × No. of cylinders × length of stroke) ÷ .85; and in two-cycle motors having a stroke of 6" or over, the old formula was: H.P. = (Area of Piston × No. of cylinders) ÷ 1.65.

The new rule for the 2-cycle type becomes, irrespective of whether the motor has a stroke of more or less than 6 inches: H.P. = (Area of Piston × No. of cylinders × stroke × 1.5).

What does this mean—simply this—that the h.p. rating of two-cycle motors in this class will be increased 27½% in the races of 1914 over what they rated in the past races. As the boat's rating varies as the cube root of the horsepower rating, therefore the ratings of boats having two-cycle motors of this type then will rate 8½% higher than they have in the past. As before, the horsepower in cruisers and open boats is two-thirds that of racers. For the two-cycle motors of over 6" stroke, the resultant rating will be even greater.

Other changes in the racing rules of the American Power Boat Association effected at its annual meeting of 1913 were of minor importance, and simply tended to make the scope of the association slightly more supervising as regards racing.

The date for the annual meeting was changed from November to October of each year to allow more time to those intending building new boats to comply with whatever changes might be made in the rules each year.

A very thorough and comprehensive report was given by the Racing Commission, showing the result of their first year's work. A rule was passed making it obligatory that the propellers should turn at the same speed as the motor in the go-ahead position of cruisers, and also a new class of cruisers was established, known as "Express Cruisers." These were defined the same as the ordinary cruisers, except that the minimum waterline breadth restrictions shall not apply, and the required headroom shall be 14% instead of 16%. The introduction of this type of cruiser is the result of many high-powered, narrow beam cruisers now found to-day, which were eliminated by the old definition.

The definition of a professional was further amplified to read as follows: No person who has followed the sea as a means of livelihood, or who has accepted remuneration for services in handling or serving on a yacht or power boat, or who shall, after 1912, race for a cash prize, or who shall enter his boat to race for a cash prize after 1913, or enter a race in which cash prizes are offered, except as provided for in section 3, rule 26, shall be considered an amateur. The section referred to has reference to the Bermuda race, where a cash prize is allowed.

The following officers were elected: Mr. H. T. Koerner was re-elected president of the association, and Mr. Morris M. Whitaker, secretary, while Mr. George C. Krusen was elected treasurer, and Mr. H. J. Gielow, measurer.

Name of Boat	Name of Owner	Club	Location of Course	Distance in Nautical m.	Date of Race	Elapsed Time	Class	Load Water Line	Weight of "B"	Weight of "C"	Area of mid.-sec.	Cycle	No. of Cyls.	Bore	Stroke	Horse Power	Rating	Speed in Nautical M.P.H.	Remarks
Dream	C. L. Lagen	Yachtsmen's Club	Philadelphia - Bermuda	734	June 7-11	98:46:24		39-003	8-833	1-6445	14-76	4	2	6	8	16-85	36-36	7-43	First
Mirna	J.M. Smellenberg	Ocean City M.B.C.	Cape May & Atlantic Ocean	16	Aug. 30th	2:06:56	Cruiser, under 45	38-898	9-916	1-75	17-35	4	4	5½	6½	31-68	40-46	7-56	"
Pilgrim	F. A. Hyde	San Francisco Y.C.	San Francisco Bay	11	July 5th	1:26:30		35-00	7-604	1-145	8-712	4	4	4	6	16-76	44-50	7-63	"
La Ola	J. S. Hawkins	Pacific M.B.C.	San Francisco Bay	11	July 5th	1:26:31		40-75	11-302	1-6093	18-189	4	3	6½	8	33-18	40-738	7-63	Second
Mirna	J.M. Smellenberg	Yachtsmen's Club	Delaware River & Bay	178	June 20-21	24:14:17	Cruiser, under 45	38-242	9-75	1-645	16-04	4	4	5½	6½	31-68	41-45	7-34	"
Tocsam II	L.W. Mulford	Ocean City Y.C.	Cape May & Atlantic O.	16	Aug. 30th	2:03:19	" " "	42-444	10-041	1-468	14-748	4	4	5½	8	31-68	43-20	7-79	"
Haji	H.J. Dudley	Camden M.B.C.	Delaware River & Bay	178	June 20-21	20:58:54	" " "	29-36	7-096	0-958	6-797	4	4	4½	5½	18-37	44-01	8-48	First
Noriedes	C.H. Miller	Cape May Y.C.	Cape May & Atlantic Ocean	16	Aug. 30th	2:11:40	Cruiser, 48 & over	34-854	7-833	1-260	9-87	4	4	5	6½	26-16	45-00	7-29	"
Rosanna	F.J. Hill	Corinthian, Cape May	Cape May & Atlantic Ocean	16	Aug. 30th	2:09:23	" " "	44-104	9-9375	1-541	15-319	4	4	6½	7	44-24	48-16	7-42	Second
Barbara II	W.M. Duncan	Old member A.P.B.A.	Philadelphia - Bermuda	734	June 7-11	85:14:26		48-333	10-375	1-7947	18-59	4	4	7	9	51-31	48-193	8-61	"
Clare II	J.H. Drexler	Camden M.B.C.	Delaware River & Bay	178	June 20-21	20:11:44	Cruiser, 45 & over	39-55	8-375	1-07	8-96	4	4	5½	6	31-68	50-54	8-81	"
Marguerite II	A.B. Cartledge	Keystone Y.C.	Delaware River & Bay	178	June 20-21	17:26:42	" " "	63-978	13-3	1-78	22-69	4	8	6	7	75-4	52-90	10-20	First
Edith M.	W.W. Moore	Atlantic City Y.C.	Cape May & Atlantic O.	16	Aug. 30th	Not taken	Express Cruiser	31-354	5-958	0-9467	5-46	4	4	4½	5½	21-66	50-40		Second
Dancva II	C.H. Strecker	Sea Isle Y.&M.C.	Cape May & Atlantic O.	16	Aug. 30th	1:18:04	" "	37-104	6-33	0-8125	5-465	4	6	5½	6	47-52	68-94	12-73	First
Viking II	A.M. Ely	Wildwood Y.C.	Cape May & Atlantic O.	16	Aug. 30th	2:51:50	Glass Cabin	47-791	6-383	0-9467	6-0346	2	2	4	4½	6-57	32-26	5-59	Second
Ben Riley	G. Billyou	Cape May Y.C.	Cape May & Atlantic O.	16	Aug. 30th	2:14:37	" "	31-854	7-002	1-177	9-18	4	2	5½	6½	15-84	38-34	7-13	First
Viking	W. Glenn	Wildwood Y.C.	Cape May Harbor	3	Aug. 30th	0:26:10	Open, under 40	19-187	3-895	0-6438	2-515	2	2	3½	3½	4-4	35-44	6-88	Second
Anna E.	F.G. English	Holly Beach Y.C.	Cape May Harbor	3	Aug. 30th	0:18:03	" " "	19-375	2-979	0-6875	2-048	2	2	3½	3½	4-4	37-98	9-972	First
Salma	G.J. Straubmuller	Sea Isle Y.B.M.C.	Cape May Harbor	3	Aug. 30th	0:20:54	Open, 40 & over	17-625	3-677	0-677	2-289	2	2	4	4	6-57	39-98	8-61	Second
Catherine II	W.R. King	Corinthian, Cape May	Cape May Harbor	3	Aug. 30th	0:17:58	" " "	27-396	4-5	0-6875	3-09	4	2	4½	5	8-83	44-28	10-02	First
Macellaia	G.C. Krusen	Fleet Rear M.B.C.	Delaware River	29	Aug. 23rd.	1:31:33		24-833	2-185 lbs.		2-185	4	4	5	4½	31-09	74-46	19-00	Second
Intrepid II	W. Somers	Atlantic City Y.C.	Cape May Harbor	12	Aug. 30th	0:36:13		30-641	3488 "		3-488	4	4	5½	6	47-52	75-76	19-89	First
Denniston	C. Gallagher	Cape May Y.C.	Cape May Harbor	12	Aug. 30th	0:38:07		26-75	2128 "		2-128	2	6	4½	4	37-41	80-45	18-90	Second
XQQME	J.C. Vanderslice	Camden M.B.C.	Delaware River	29	Aug. 23rd.	1:17:47		24833	2540 "		2-540	4	4	5½	6	47-52	81-50	22-37	First
A.F.B.	L. Burke	Atlantic City Y.C.	Cape May Harbor	1	Aug. 30th	0:02:06+		16-75	1984 "		1-984	4	4	5½	6	47-52	82-80	28-352	2nd (Admiralty conditions)
Alparnel Jr.	R.P. Smith	Keystone Y.C.	Delaware River	29	Aug. 23rd.	1:14:52		17-00	2356 "		2-356	2	6	5	5	57-74	83-82	23-23	First
Tech Jr.	T.C. Du Pont	Atlantic City Y.C.	Cape May Harbor	1	Aug. 30th	0:01:44+		19-766	3361 "		3-361	4	8	5½	6½	95-04	89-64	34-414	" (Admiralty conditions)
P.D.Q. III	A.G. Miles	Chippewa Y.C.	Alexandria Bay	87	July 31, Aug. 1st	2:37-45	40 ft. Unlimited		Not measured for Rating			4	8	5½	6½	95-04		33-1	Second
Ankle Deep	C.S. Mantowski	Lake Gen. Boy. Assn.	Alexandria Bay	87	July 31, Aug. 1st	2:22:25	" " "	31'0"				4	16	5½	6½	190-16		36-66	First (Gold Cup winner)

Official summary of the races sanctioned by the American Power Boat Association in 1913.

How to Build a 28-Foot Cruiser.

IN THE February issue of MoToR BoatinG, the first of a series of three articles on How to Build a twenty-eight-foot cruiser will appear. This boat has been especially designed for MoToR BoatinG by the well-known naval architect, Frederick S. Nock, and, without question, it will be the best and most thorough article of its kind ever published. The dimensions of this cruiser are as follows: Length overall, 28 feet; extreme beam, 8 feet; draft, 2 feet 6 inches. It is of the raised-deck type, and the cabin accommodations are the largest and best arranged that it is possible to get in a 28-footer.

The boat will not be an ordinary stock design slightly changed over, but a new and original design from beginning to end. It will be suitable for motors between 10 and 20 h.p., and should give a speed of from 8 to 10 miles an hour without difficulty. In fact, it is just the type of boat which every one is looking for these days, and up-to-date in every particular. The designer has worked the design out full size on his loft floor, so there can be no question but that his figures and working drawings are absolutely correct. He has also gone into such important details as sectional areas, wetted surface, shell expansion, calculations for speed, centers of gravity and buoyancy, seaworthy qualities, etc., in obtaining a design which will meet every requirement of the amateur.

The building description will be very complete, but not lengthy, as every unimportant detail has been omitted. Any amateur fairly skillful with the use of tools will have no difficulty in building this boat.

While we are on the subject, it might be well to remind our readers that the February number of MoToR BoatinG will be the big annual double show number. Coming out as it will a day or two before the New York Show opens, it will be a most complete guide to the New York Motor Boat Show. This show promises to be the best and largest ever held, for months ago every bit of available space was sold out by the management. To take care of the late arrivals, they have been compelled to build an extension to the balcony of Madison Square Garden, where the show will be held from January 31st to February 7th.

New Things for Motor Boatmen

The Healy Valve Reseater.

The Healy Tool and Appliance Company, of Brocton, N. Y., are making a valve reseating tool which, complete with seat cutters, pilots, dressing head and extra roughing cutter, costs $30. The tool is made of hardened and ground steel, is operated by hand and is designed so that the results are automatically accurate. Ralph Waldt, of 1790 Broadway, is the distributor for New York and district.

* * *

The Muir Carbureter.

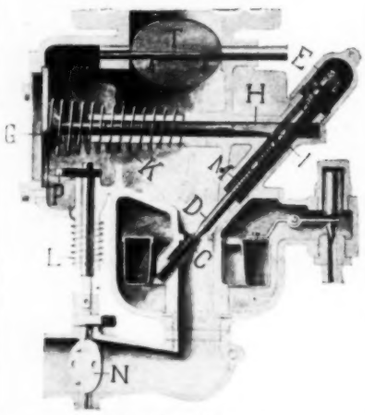
The stem of the auxiliary air valve of the Muir carbureter is continued in the form of a cam to engage the gasoline needle, the contour of this cam being determined by actual experiment with the engine running on the block, a special measuring instrument by which micrometer readings are taken of the opening of this auxiliary air valve being used. Another instrument measures the lift of the gasoline needle. Referring to our illustration: C is the fuel nozzle; D, fuel needle valve, pressed upward against the face of the cam, or away from nozzle C by spring M; I is a hardened pin (or roller) in contact with the hardened nickel steel face of the cam H, which controls the lift of needle valve D. In operation, as throttle T is opened, the measured demand of the engine pulls air valve G against the resistance of spring K from its seat; and in proportion to the lift of air valve G, cam H is moved to the right, allowing spring M to raise the gasoline needle valve, D, the exact distance necessary to keep the ratio of fuel to air constant for minimum consumption, smooth running and increased power. To compensate for any great change in temperature or density of fuel, a slight adjustment of needle valve D is provided for in screw E. Turning this screw up gives more gas and turning it down gives less gas throughout the entire range of engine speeds. The Muir Company, Inc., of Baltimore, is the maker, and Castle & Monson, of Detroit, Mich., the factory distributors.

* * *

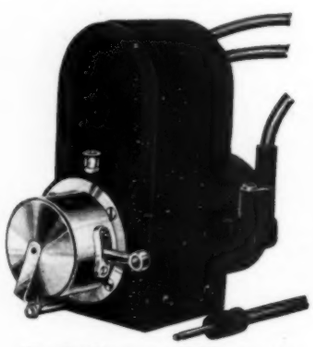
The Berling Type "N" Magneto.

The Ericsson Manufacturing Company, of Buffalo, N. Y., have introduced a new type of high-tension magneto known as type "N." The magneto is entirely enclosed; the interrupter is designed to eliminate missing caused through the sticking of the interrupter arm, and the brushes are easily accessible and may be quickly removed and cleaned. The setting or timing has been simplified, and it is claimed that it is impossible to flood the magneto with oil. The frame is one solid unit and the interrupter cams are integral with the housing. Ball bearings are used and magnets are of tungsten steel. All outside surfaces are highly finished.

The Healy valve reseater.



The Muir carbureter.



The Berling type "N" magneto.

An Electric Vaporizer.

F. G. Crone, of 334-336 Genesee Street, Buffalo, N. Y., has recently produced an electrically-operated device which is designed to heat and vaporize the fuel as it leaves the carbureter, or it may be arranged to heat the air before it is taken into the carbureter, and thus facilitate engine starting in cold weather. When the engine is running the current is cut off, but, if desired, the heat may be maintained by utilizing the exhaust. In connection with the vaporizer is a primer which sprays fuel over the heater, for starting where kerosene is used.

* * *

The Regal Lighting Plant.

The Regal Engine Company, Coldwater, Mich., are offering to the trade for use in yachts, a small but original lighting plant in which the field of the dynamo forms a part of the engine base, and the armature is keyed directly to the engine shaft—a method for driving the generator which does not hinder the engine from being used for driving other machinery. The engine is patterned after the Regal marine engine, being of the vertical type of 3 h.p., with cylinder dimensions of 4" x 4½" bore and stroke. Ignition is by jump spark, and the current is taken from the generator itself through the storage batteries. The motor is rated at a capacity of 60 16-c.p. lamps, and with the aid of different sized batteries, from 85 to 120 lamps can be carried for eight hours. In the cut, the switchboard is shown mounted on the dynamo, but it can be placed in any position desired. The engine is started from the switch, as the dynamo, taking current from the storage battery, will operate as a starting motor.

* * *

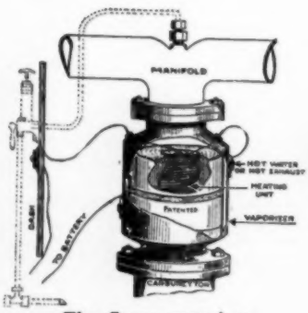
The Breeze Carbureter.

The Breeze Carbureter Company, of 250-252 South Street, Newark, N. J., make the Breeze "Four-in-One" tank valve which contains a strainer, a sediment cup and a shut-off valve, and also provides an emergency tank which is incorporated with the main fuel tank. The combination is worked by a three-way valve, which is operated by a lever. The valve, which is intended to be installed at the bottom of the fuel tank, is designed to act as a strainer, to provide an emergency supply of fuel and to shut off the fuel when the engine is not in use.

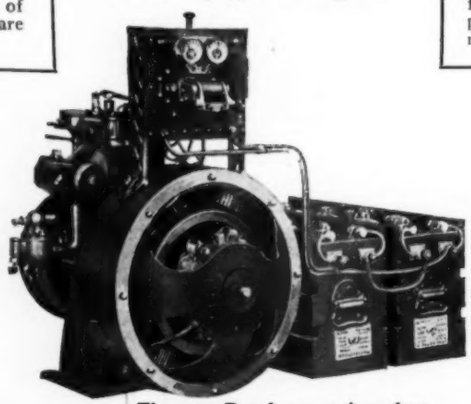
* * *

The Zenith Carbureter.

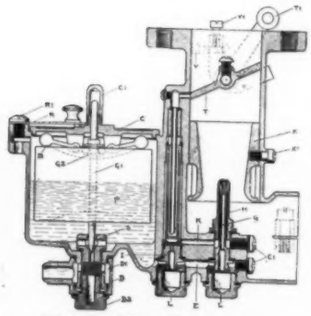
The Zenith Carbureter Company, of Vanda Avenue, Detroit, Mich., manufacture the Zenith carbureter, which has been widely used in Europe for some years. They claim that their carbureter will operate perfectly from the lowest to the highest speed on various grades of fuel, owing to the construction of the compourd spray nozzle which insures a constant mixture.



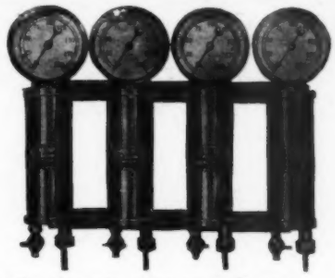
The Crone vaporizer.



The new Regal generating plant.



The Zenith carbureter.



The Loomis pressure indicator.

The Loomis Pressure Indicator.

This device, manufactured by Osborn P. Loomis, of Newport News, Va., is designed to indicate the pressures existing in the cylinders at any and all times. The maker claims that it will show whether your spark is adjusted correctly, whether your mixture is adjusted properly, and shows the changes made in the foregoing while you are making them. Since there is a separate dial for each cylinder it shows which cylinders are doing the most work, how much, and when. In other words, it is designed to give a record of what each cylinder is doing all the time, with the pointer steady for each given load. The price of this indicator, which can be used on yachts, launches, stationary engines, etc., is $16.75 per cylinder, including all valves and necessary tubing required by the typical engine.

* * *

The Royal-Silent Vaporizer.

This is a device designed to change the raw fuel spray from the carbureter to a minutely mixed and more highly explosive vapor. The mechanical action of the vaporizer, which is installed above the carbureter, is calculated to cause two series of rotations; first, in a rotary and converging manner and, secondly, an outward rotation allows portions of the gas to escape through the openings adjacent to the tongues shown in our illustration. The various currents are further multiplied, and, as the tongues do not quite meet, a spray is permitted to escape rapidly through the central space, still further agitating the currents. The mixer, which is said to ensure satisfactory results from low-grade fuels, costs $3. It is designed and perfected by Aubrey Peacock-Lawrence, and sold by the Royal-Silent Motor Co., of Los Angeles, Cal.

* * *

A Valve Spring Lifter.

Winton L. Smith, of 78 Clinton Street, Newark, N. J., is the manufacturer of a valve-lifting device which operates on two springs simultaneously, and which also holds them in a state of compression, enabling the valves to be removed and replaced without disturbing the springs.

* * *

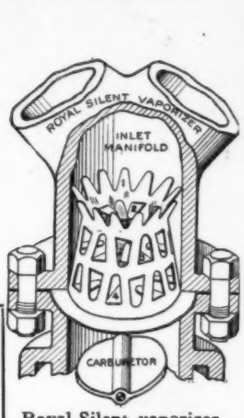
The Gallagher Carbureter.

The Gallagher Carbureter Company, of 1876 Broadway, New York City, manufacture the Gallagher carbureter, which is a mechanically-operated carbureter without springs or automatic movements which might be affected by gasoline and atmospheric conditions. Gallagher carbureters have double jets, the high-speed gasoline, as well as the low-speed being adjustable independently of the high or low-speed air. This is done mechanically. The carbureter has no tickler and hot water and hot air heating can be furnished. The needle valve has an adjustment by means of which the level of the gasoline in the float chamber may be raised or lowered without interfering with the carbureter in any way.

* * *

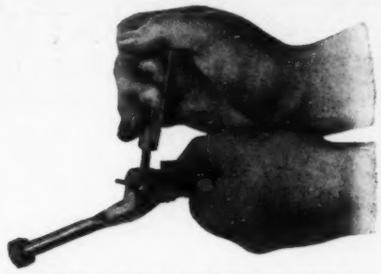
"Smile" Engine-Room Telegraph.

R. S. Mills, 136 Liberty Street, New York City, is putting out an engine-room telegraph of new design which sells for $38. The apparatus consists of two instruments, one of which is located on the bridge, and the other in the engine-room. To call the engineer's attention, the knob on the bridge instrument is pulled out, showing a small light on the instrument, and also blowing an electric whistle in the engine-room. The hand is then turned to the signal desired, and by pulling out the knob further the desired signal in the engine-room is illuminated. As the engineer obeys the signal he presses the return signal, showing that the order has been understood and executed. The knob pushed in cuts out the electrical connections.

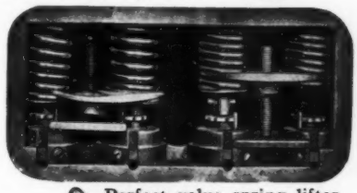


Royal-Silent vaporizer.

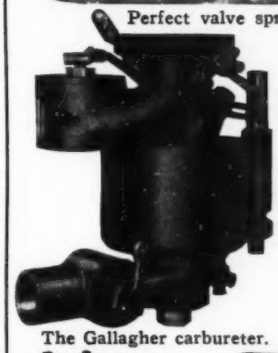
Bosch terminal tool.



Bosch terminal tool stripping insulation.



Perfect valve spring lifter.



The Gallagher carbureter.

Gibson dry cell.

Gibson plug.

Ad-a-man-tor carbon remover.

Smile engine-room signal.

Red Wing starter.

The Bosch Terminal Tool.

Recognizing the need of a contrivance for making permanent and positive terminals upon electric wires or cables, the Bosch Magneto Company, 233 W. 46th St., New York, have devised a tool for this purpose which is simple and reliable in operation. It is used in conjunction with a terminal also made by this company which consists of a hollow tube approximately 1¾ inches in length, one end of which is beveled. To secure this terminal to the wire, the insulation is cut away from the conductor for about ⅞ of an inch, and the terminal forced down between the conductor and the remaining insulation until the end of the tube comes flush with the tip of the wire. The tube with the wire within it is then bent to form a complete circle and a positive terminal has been made. Where the conductor is of such small size that it would be impossible to force the tube under it the insulation is cut away as before, but a tube is used having a ferrule at one end which slips over the insulation, thereby giving the necessary rigidity at this point and preventing the braided cover generally used on cable of this character from raveling. The tube is then looped as before. All this work would be difficult if it were not for the terminal tool which cuts and strips the insulation, forces the tube into the cable, and loops the terminal into a perfect circle. The tool costs $15 and the tubes $3 a hundred.

* * *

Gibson Specialties.

The Gibson Automobile Company, Indianapolis, Ind., manufacture a line of engine specialties, among which may be mentioned their "Gibson Quality" dry cells. Another device is a priming plug, which is constructed with a petcock in the side which can be opened for the purpose of pouring gasoline into the cylinder for priming in cold weather. This spark plug is so designed that the gasoline trickles down the porcelain and drips directly to the sparking points where it is vaporized and ignited. This plug sells for $1.50.

* * *

Hendricks Ad-A-Man-Tor.

The Hendricks Ad-A-Man-Tor Company, of Grand Rapids, Mich., manufacture a device which is intended to be permanently installed in the engine-room for the purpose of removing carbon, cleaning valves and priming for easy starting. Ad-A-Man-Tors are shipped with two flint glass tanks, one to be used for cleaning and the other for priming.

* * *

Red Wing Rear Starter.

The Red Wing Motor Company, Red Wing, Minn., are marketing a rear starting device by which the engine is started from the steering wheel. This device also combines the control of the motor, and consists of two wheels, one of which has the tiller line attached, and the other of which is connected by chain to a cog wheel at the rear of the motor as shown in the photograph. Spark and throttle control are mounted with dial.

Nautical Expressions.

Many Terms Used and Heard Aboard a Motor Boat Which Are Not Readily Understood by the Novice. Expressions Handed Down from the Old Sailing Yacht, Many of Which Are Equally Applicable to the Modern Motor Craft.

JUST as each calling in life has to develop its own peculiar vocabulary because extant language is utterly unable to supply the demands of conciseness and force, so orthodoxy in turn becomes obliged to adopt, often against its will, many of these specially-coined words and phrases, using them as metaphors and similies to achieve a terseness and force which circumlocution theretofore entirely precluded. If nautical lauguage has not, in fact, supplied us with more such expressions than any other of the several glossaries from which we have so eagerly "adapted," then it must at least be given credit for holding the leading position in versatility and force.

Adrift is essentially a nautical word; its very entomology violates all the laws and the prophets of orthodox English. It would take from four to six words to express "figurehead." The word ship-shape is very expressive; but where could one find a word carrying the depth of meaning expressed by "mainstay"? In a gale of wind a sailing vessel may lose her fore and mizzen masts and still be in no particularly alarming position; her safety depends ultimately upon her ability to carry the main topsail. Let the main stay part, and it will be all off.

"Learning the ropes" contains a wealth of meaning to anyone who has ever attempted to master the leads of the standing and running rigging of a square-rigged sailing vessel; its universal application in everyday language is too apparent to call for comment. The nautical meaning of the word "plane sailing" has been explained in the series of articles on navigation appearing in these pages; only the word is erroneously spelled in its adapted form "plain sailing." Similarly the word underway has been brought into universal use, but it is usually written in two words. However, the meaning is still there.

The skipper of a sailing vessel keeps his "weather eye open" looking for squalls, which may always be reasonably expected from windward; similarly the "land lubber" keeps an eye trained on any source from which trouble is apt to come. Speaking of land lubbers, the origin of the word is shrouded in mystery. Aboard ship anybody who makes a mistake is a lubber; the prefix "land" is therefore probably superfluous. Lubber is synonomous with "dub" ashore.

Very few people connect the expression "bracing up" with its nautical origin, though the connection is anything but far-fetched. When the wind hauls ahead a little it is, of course, necessary to "brace up" the square-rigger's yards to enable her to *stand up* under the new and embarrassing conditions; and there you are. And in this connection it is impossible to overlook the phrase "taken aback," so commonly used to mean "taken by surprise." No seaman will allow the wind to get on the wrong (forward) side of his sails if he can help it. The masts are not stayed to stand much of a strain from forward, and when the wind comes out ahead, blowing the sails flat against the masts, the mate is most profoundly surprised and alarmed, and at once uses all the knowledge he possesses to "fill away." Here again we have another common expression: backing and filling. And its meaning refers once more to the wind being first on the wrong and then on the right side of the sails. But the phrase has a nautical significance even more analogous to its common use ashore. Backing and filling the sails is exactly what happens when a ship is chappeled, box-hauled, tacked or worn in the effort to accomplish something, such as "weathering" a point or buoy, and thus we find ourselves face-to-face with still another word we have appropriated from the sea.

When the skipper finds he can lie nearer his course, or otherwise proceed to better advantage, by going about he "takes the other tack"; so does the citizen ashore. Where can there be found a phrase more expressive of recklessness and utter abandon than "three sheets in the wind"? Also "leeway," while possessing a dual meaning at sea, is, nevertheless, in both cases a very similar word to its shore analogue. When a ship is lying so close to the wind that her yards are braced "sharp up" one component of the wind's total force acts to drive her ahead while the other sends her steadily sidewise down wind. This latter effect is called leeway. Leeway also means quite properly the amount of departure allowable to one side or the other of a given course that will still leave a reasonable margin of safety, and it is in this sense that the word is commonly used ashore.

"Veering and hauling" is equally applicable at sea to a breeze that shifts back and forth between certain limits, and to the alternate slacking away and rounding in of a tow line or other piece of cordage. "Bringing up with a round turn," which we use metaphorically, is literal enough with the sailor. A line which is being payed out roundly with considerable force pulling at the outboard end may be checked quite readily by simply taking a "round turn" of the slack around a stanchion, belaying pin, or other fixed object. The length of line thus subjected to an improvised friction brake amounts to nearly four times the diameter of the stanchion on which it is wound, and in this way a very light man may easily control a weight of several tons. We use the expression merely to emply that the check is sudden and effective; and so, in fact, it is.

On board ship the term "to ship" means to enlist: to become a member of the ship's company. Ashore its meaning appears to be reversed. "Scudding," on the other hand, or "to scud," appears to imply quick motion, which is exactly what the nautical acceptation of the term conveys. The low fracto-nimbus clouds which precede a squall are called "scud" from the circumstance that they travel down wind at a very high speed. Similarly a ship "scuds" when running before a gale. It is impossible, however, to see any connection between the word "jibe" as used at sea and ashore. A connection between jibing a fore-and-aft rigged vessel, which is invariably attended by the utmost care and anxiety, and an agreement does not, in fact, appear to exist.

Go on board any sailing ship to-day, and you will feel like Peter Simple, new midshipman, in Captain Marryat's novel. "In short," says Peter, "what with dead-eyes and shrouds; cats, cat-harpins and cat-blocks; dolphins and dolphin-strikers, whips and puddings, I was so puzzled with what I heard that I was about to leave the deck in despair on my own account when I heard the first lieutenant tell the boatswain to bleed the buoys. That settled me."

It will be noticed that all the phrases cited have referred to sailing ship practice. Steam navigation has no language other than the ordinary parlance of the machine shop ashore, and has therefore furnished the language with nothing in the way of distinctive expressions. Such terms as we use applying to steam ships, except such as are common to vessels under steam and sail, are equally applicable to locomotives and stationary engines.

St. Louis III, owned by E. A. More, of St. Louis, Mo., and built by Murray and Tregurtha, of Boston, Mass.

YARD AND SHOP

New York Office for Hyde Propellers.

We are in receipt of advices from the Hyde Windlass Company, of Bath, Maine, manufacturers of the Hyde turbine type propeller and the Irish pneumatic clutch control, that from now on their interests in New York and vicinity will be looked after by Mr. R. A. Corley.

Mr. Corley will have offices at Room 508 E, 30 Church Street, where he will be pleased to meet all customers who may be interested in motor boat propellers or the Irish clutch control.

Mr. Corley will also be pleased to call on the dealers in and about New York City and can undoubtedly give them better service than can be gotten from the works. He will also make a few trips each year around the country in the interest of the Hyde Windlass Company.

* * *

A New Van Blerck Publication.

A copy of the "Review of the Racing Season of 1913," published by the Van Blerck Motor Co., Monroe, Mich., has come to the editor's desk, and it is one of the most original, artistic and interesting booklets of its kind, we believe, that was ever gotten out by these engine manufacturers. In it are described and illustrated the prominent boats of the 1913 season. Names familiar to many of our readers—Kitty Hawk V, Kitty Hawk, Jr., Disturber III, Oregon Kid, Cinderella, Josephine, Peter Pan V, Hydro-Bullet, Empire, Stroller, Jovial, Baby Ro, Charmalee, A. F. B., Jolly Roger, Tripper, Van Blerck, Barnacle, and many others—are included in this work. Everyone receiving a copy will treasure it as a useful reference and a souvenir of motor boat history made by these little boats during the last year.

* * *

A Catboat for Sword Fishing.

The accompanying photograph of a "Down East" catboat shows the type of boat which is in almost universal use in Nantucket Sound and the other waters of that locality, on account of its qualifications as a sea boat. The boat shown is the property of M. P. Cooper, of Gay Head, Mass. It is 22 feet long by 8-foot beam and is equipped with a 7 h.p. heavy duty Bridgeport. At the time the photograph was taken Mr. Cooper was engaged in swordfishing and the boat was rigged for that work. On the bowsprit will be seen the pulpit, where the execution of the fish is accomplished. The "striker," the man who handles the dart or harpoon, stands in this pulpit, lashed in place to prevent his being thrown out by the rough seas. He must be in this position for hours at a time so that it is a task which calls for great endurance. Furthermore, the "striker" must be possessed of great skill with the harpoon, for a miss means the loss of the fish. During the fishing season the boats are in constant duty, sometimes running both day and night, and while the sail is used, the motor is mostly depended upon, the sail being more for steadying the boat in the seas.

* * *

Cobos, an Auxiliary Schooner.

One of the illustrations in this department shows Cobos, a large auxiliary schooner, which was built by the Clooney Construction Co., West Lake, La., and sent under her own power and sails to Tuxpan, Mexico, where she is used by the Oilfield Co., of Mexico. She is 108 feet in length by 26-foot beam, and 7 feet 3 inches draft. She is powered with a 65 h.p. Wolverine motor.

* * *

Fay & Bowen Export Shipments.

The Fay & Bowen Engine Co., of Geneva, N. Y., are now preparing for shipment to Santo Domingo one of their 21-foot standard launches with their 5 h.p. single-cylinder two-cycle engine, and for shipment to Brazil one of their 25-foot launches equipped with their 15 h.p. two-cylinder, two-cycle kerosene engine. The Brazilian boat is to be used largely for towing purposes. Both of the boats are copper sheathed and are equipped with cushions, removable canopy tops, etc.

* * *

Two New Homes for the Johns-Manville Co.

In order to take proper care of the big increase in its volume of business, two big branches of the H. W. Johns-Manville Co. have recently been compelled to seek larger quarters. The new home of the company in Baltimore is a six-story and basement building, with floors measuring 47 x 187 feet, located at 207-13 Saratoga Street, which is within two blocks of the post office and right in the heart of the business section. It will include an attractive store and up-to-date offices, in addition to large warehouse accommodations. To facilitate the handling of incoming and outgoing shipments, there will be a railroad switch into the building.

The other move is the branch to one located at Toronto. The new store and warehouse branch will occupy a floor area of which this is approximately 35,000 sq. ft., and is situated at 19 Front Street, East, in the heart of the wholesale district. In their new quarters this firm will be able to carry a larger stock and have more is a model building, with

Mr. W. H. Moreton, of Boston, Mass., new distributor for Gray motors in that territory.

Autowyn III, a 20-foot hydroplane, powered with a 6-cylinder 45-75 H. P. Sterling motor which makes a speed of 40 miles an hour.

Cobos, a 108-foot by 26-foot auxiliary schooner, powered with a 65 H. P. Wolverine motor, recently sent to Tuxpan under her own sail and power.

ample space for the display of their complete line of J.-M. asbestos roofings, packings, pipe coverings, electrical supplies, etc.

* * *

Introducing "The Log Book."

We have received from the Gray Motor Co., Detroit, Mich., a copy of "The Log Book," a house organ which has just been launched. This little sheet is bright and will interest all members of the Gray family, owners, prospective owners, and salesmen alike.

* * *

Detroit Lubricator Co.

Two items of interest come from the Detroit Lubricator Co., of Detroit, Mich.—one to the effect that Mr. G. K. MacEdward, advertising manager of the company, gave a very interesting talk at the annual convention of the National Gas Engine Association at Toledo on "What the Consumer Wants in Lubrication." The other note, while not of direct interest to motor boatmen, is given here for its news value: Mr. A. G. McChesney, for fifteen years traveling engineer and locomotive inspector with the Baldwin Locomotive Works, has become associated with the railway division of the Detroit company.

* * *

Reduction in Price of Two Wolverine Motors.

The following reduction of price and change in engine ratings was recently announced by the Wolverine Motor Works, Bridgeport, Conn.: Their engine formerly rated as 12 h.p., 6½ inches x 7 inches, twin-cylinder, has been changed to 12-14 h.p. Wolverine heavy duty, and the price has been reduced from $990 to $900, while the motor formerly rated 18 h.p., 6½ inches x 7 inches, three-cylinder, will now be known as the 18-21 h.p. Wolverine heavy duty, with a reduction in price from $1,400 to $1,350.

* * *

Chas. E. Miller's 1914 Catalogue.

Chas. E. Miller, 97 Reade Street, has just put out his 1914 advance catalogue No. 27. One hundred thousand copies will be printed for distribution at the forthcoming shows, and it is a safe bet that the edition will have more than that number of interested readers. As with the predecessors of this catalogue the cover is very attractive, combining as it does the four realms of sport with which this house is concerned—motor boating, motor planing, motorcycling, and automobiling.

* * *

Member of Parliament Scripps Representative in Manitoba.

The Scripps Motor Co., Detroit, Mich., announces that Mr. D. A. Ross, of Winnipeg, Manitoba, Can., will hereafter be exclusive agent for their motors in the Manitoba district. Mr. Ross, who is a member of Parliament, is thoroughly acquainted throughout the district and is in an excellent position to render the best of service to Scripps owners. He is the present owner of the famous cruiser Sea Wolf, which completed the 1911 Great Lakes Reliability Cruise with a perfect score. Sea Wolf is powered with a six-cylinder 60 h.p. Model S. medium duty Scripps motor, which is now in its fourth season of service. Because of this, the Scripps Company point out, Mr. Ross is well prepared to demonstrate to prospective purchasers the reliability and tenacity of their motors.

* * *

Anderson Engine Company Moves.

The Anderson Engine Co., of 61st Place and Archer Avenue, Chicago, Ill., have moved their factory to 4036-4038 N. Rockwell Street. Their main office will also be moved to this address within a short time, as it will give them a much better location as far as the local boating interests are concerned. The site of the factory is very convenient, as it is right along the North Branch of the river, just north of Irving Park Boulevard.

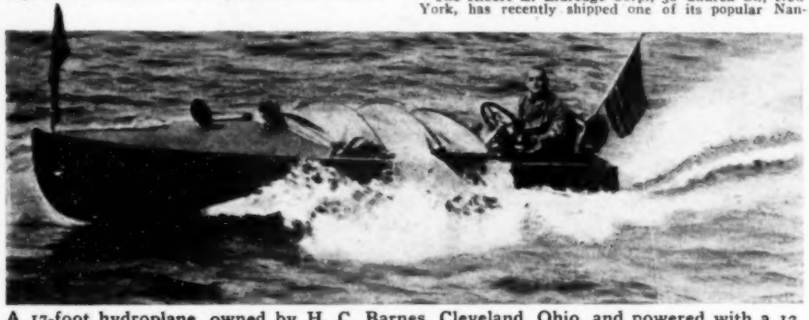
* * *

A Good Work for Cincinnati.

Since moving to their new large quarters at 316-318 Main Street, Cincinnati, O., Messrs. Spencer, Hartlieb & Co., are doing a wonderfully large boat, engine and accessory business. They are representatives of the Gray Motor Co., Sterling Engine Co., Racine Boat Co., Baldridge Gear Co., Michigan Wheel Co., and

various other accessory companies. They report that their business has increased 100 per cent. over last year, and indications point to the coming season as being one of the best if not the best in their territory for many years. The company have recently taken over the distributing agency for the "K. W." Company's line of ignition specialties, and announce a very active demand for this well known line of goods. Their traveling men report an awakened interest in motor boating this season that bids fair to place this great sport on a footing with the automobile end of the game.

They are now about to place their agency contracts for the season of 1914 and would be glad to hear from all parties operating launch harbors, boat clubs, etc., who would like to handle a wideawake agency proposition along the Ohio and tributary streams from Pittsburg to Cairo. Their stock is complete and shipments can be made on the day the order is received.



A 17-foot hydroplane, owned by H. C. Barnes, Cleveland, Ohio, and powered with a 12 H. P. Kermath motor, which gives a speed of 17 miles per hour.

Marine Glue in Aero-Boat Construction.

When the builders of aeroplanes turned their attention to the hydroaeroplane they found that a good many of their problems had already been solved for them by boat builders. The new was combined with the old and the results were very satisfactory. As an instance of this, one hydroaeroplane builder used an old and tried glue with the greatest success as the following excerpt from a letter addressed to L. W. Ferdinand & Co., 201 South St., Boston, Mass., will show. As the writer of the letter, Mr. Hugh Robinson, of St. Louis, Mo., says: "In the construction of the hull of the Benoist flying boats which I designed and built, I always used your Jeffery's marine glue exclusively, and the boats are a marvel of strength and lightness and never leak or take water in the least."

* * *

Bruns Kimball & Co. Open in Philadelphia.

A new store at 608 Arch St., Philadelphia, Pa., is now being fitted out by Bruns Kimball & Co., of 132 Liberty St., New York. The new store is somewhat larger than the New York store and will be exceptionally well equipped. The popular and well known Sterling representative in Philadelphia, Mr. J. J. Farley, has been engaged as manager by the company. In this new store Mr. Farley will have an able corps of salesmen, and an efficient office force to handle all details of the business with promptness and accuracy. The famous Sterling engine will be handled as well as other well known four-cycle and two-cycle machines, and the Philadelphia branch will follow out the established policy of the parent house in New York, of accepting used engines in part payment for new, and offering exceptional bargains in rebuilt second-hand machines.

* * *

A Neat Little Booklet.

The Gas Engine & Power Co. and the Chas. L. Seabury Co., Cons., Morris Heights, New York, have just received from the hands of their printers a very attractive booklet relating in story and picture the many uses to which this concern's 30-foot Speedway Runabout can be put. The booklet is very tastefully gotten up, and the five photographic reproductions done in green tint add to the pleasing effect.

* * *

Red Head Priming Plugs.

The Emil Grossman Mfg. Co., Inc., Bush Terminal Bldg., Brooklyn, N. Y., announce that on November 22nd they took out a license to manufacture Red Head priming plugs under patents No. 642,167, granted to Sims, January 30th, 1900, and No. 915,896, granted to Shea, March 23rd, 1909. They also state that all Red Head priming plugs which they manufactured and shipped prior to November 22nd, are also protected under these patents.

* * *

Recent Loew-Victor Appointments.

Appointments of the following representatives for Loew-Victor engines have recently been made: For the Metropolitan District, Mr. H. C. Cushing, Jr., World Bldg., New York; for the Boston territory, Mr. Walter H. Moreton, 218 State St.; for Lake Winnepesaukee, C. H. Ray & Co., Wolfsboro, N. H.; for the Thousand Island territory, Mr. Charles A. Hass, Clayton, New York. Mr. Wm. H. Hand, Jr., will handle the territory within a radius of 25 miles in New Bedford.

* * *

New Advertising Man for Billings-Chapin Co.

M. A. Smetts, formerly in the advertising department of Power Boating, has recently taken charge of the advertising department of the Billings-Chapin Co., Cleveland, Ohio, manufacturers of a complete line of paints and varnishes.

* * *

Nantucket Dory for Jacksonville, Fla.

The Albert E. Eldredge Corp., 30 Church St., New York, has recently shipped one of its popular Nantucket dories to Mr. E. H. Lyon, Jacksonville, Fla. The boat is complete in every detail with 3½-4 h.p. Fulton self-sparking engine, cushions, spray hood, etc. Mr. Lyon, whose home is at Englewood, N. J., requested that he be advised when the boat's trial trip was made. He went to City Island and took part in the trial trip, which was satisfactory in every way. The boat was then taken out of the water, given final coats of paint and varnish and shipped directly to Jax via the Clyde Line.

* * *

W. S. MacLeod.

It is with feelings of regret that we announce the death of W. S. MacLeod, New York manager of the Buffalo Gaseline Motor Co. Mr. MacLeod was 54 years old and had been in charge of the New York office for the past four years. Previous to that he had acted as Washington agent for the Truscott Boat & Engine Co. Mr. MacLeod was very well known in motor boat circles both in New York and Washington. He is survived by his wife.

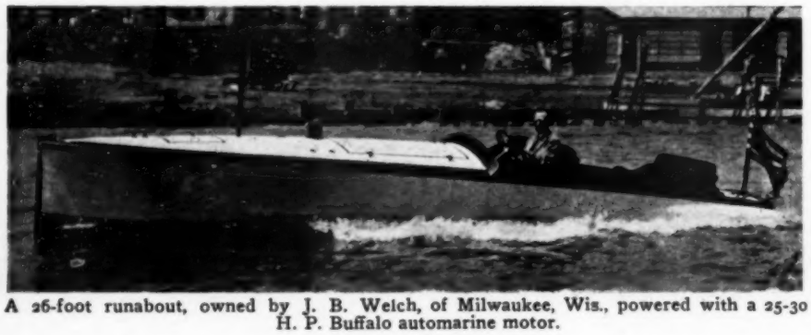
* * *

American Launch Company's Purchase.

The American Launch Company has recently purchased the plant of the Bayonne Launch Company, at East 36th St., Bayonne, N. J., and will continue the manufacture of the Doyle "V" bottom boats, which have been heretofore built by the M. I. Doyle Company and the Bayonne Launch Company. The new company has secured the services of Mr. Mason I. Doyle, as secretary and general manager, and the boats will be built under his supervision and management.

There have been some minor changes in the design since last season, and the new 1914 models will contain all the old essential details, such as "V" bottom

(*Continued on page 45*)



A 26-foot runabout, owned by J. B. Welch, of Milwaukee, Wis., powered with a 25-30 H. P. Buffalo automarine motor.

Work Planned Before Starting.

(*Continued from page 29*)

the plank through the center portion of the boat, as per illustration, so as to arrange for a good shift of butts between new and old portions of the hull, and to determine where each strake of plank shall be cut in separating the boat into two portions, and not to destroy any more of the old work than is necessary.

The butts of the plank to be midway between the frames and in adjacent strakes not to be nearer than two frame spaces, to have at least three strakes between butts in the same frame space. The butts of the plank to be secured to oak butt blocks of the same thickness as the plank, one inch wide and about 9 inches long.

After making the butts to give a good shift, cut the keel and keelson at center of length. When, in the arrangement of butts, the plank laps the amidship frame, cut the fastening between plank and frame, to allow for separation of the two parts. The fastenings for house and standing room, coaming, floor and beams to be cut clear of deck to allow house and coaming to go with the forward portion of the hull. Have a trough arranged to enclose sides of keel, and an upright at required distance of the increased length. The after portion being well shored and rigidly secured in place, haul the forward portion forward the desired six feet. Stretch a line from the forward upright to another at the center of stern, and, with plumb bob from the line, regulate the center of the forward and after ends and securely shore and brace them.

Secure four or five battens on each side of outside of the plank of both forward and after portions of hull to allow for bending in frames to the proper shape, and to have a fair deck and side lines to the new part of boat. Fit and scarf the new part of keel. At the location of each new frame which should have the same spacing as the other parts of the boat, fasten to the batten a piece of wood of the same thickness as the plank, so as to bend the steamed frame out to each piece of wood, and thus allow for the proper thickness of plank to make fair work with connecting the new plank. The new half frames could all be bent to one mold and then when cold placed in their proper location against the batten, and with lower ends sawed off to butt against each other on the center line of keels, floor timbers to be fastened to frames and across the new portions of keel. With the added buoyancy amidship and weight placed in the galley, it will be necessary to move the motor forward.

ARTHUR B. CASSIDY, Wollaston, Mass.

One of the popular models made by the Michigan Steel Boat Co., Detroit, Michigan.

Motor Boats of Miquelon.

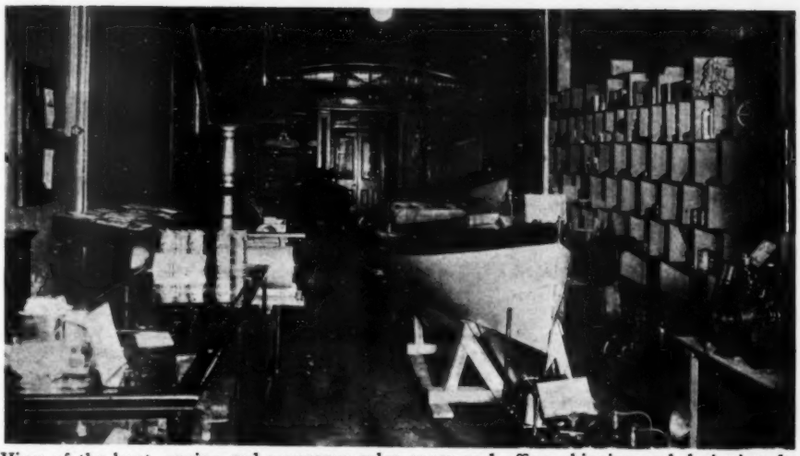
(*Continued from page 30*)

boat, by which time he has reached the beach, as these flat-bottomed craft draw but little water. He then hooks on the line from the windlass, and in a minute's time his craft is high and dry.

It is the writer's humble opinion that this idea could be used to great advantage, not only in many of our American fishing craft, but in pleasure boats as well, that are to be used under similar conditions.

(*Continued from page 44*)
with curved side frames, special rabbeted chine, hackmatack stems, etc., and in addition the 23½ ft. auto express will have a cockpit 9 ins. longer than the 1913 model. This will give a seating capacity for two extra people.

The company is looking forward to a large spring and summer business, and is already building boats which will be kept in stock, ready for immediate delivery. In addition to completed launches, the company will continue the manufacture of knockdown frames. One of the interesting products this concern turns out is called by them a "hull in rough." This is merely a set of frames put together permanently, and planked up, without any other work being done on the boat. It is sold by them at a figure very little more than a knockdown boat, and it saves the amateur the trouble of putting together the frames and planking the boat; besides it secures him an absolutely true boat in every respect.



View of the boat, engine and accessory sales room and office, shipping and designing departments of Spencer, Hartlieb & Co., Cincinnati, Ohio.

* * *

The Electrical Blue Book.

A volume with the above title has just been published by the Electrical Review Publishing Company, Chicago, Ill. The book is of value to every one concerned with the installation and utilization of electrical material, whether he be concerned with fitting a lighting plant to his boat, or what not, containing as it does a complete buyer's guide of electrical material. Ten thousand copies of the book are being distributed to buyers of material of this nature.

* * *

The Standard in Hudson Bay.

The sphere of the motor boat is constantly widening and before long, no doubt, we will hear of some racing bug losing his way and banging his speed boat into the North Pole. The two photographs shown herewith are of a boat launched in Hudson Bay, not so very far from the Pole, and an Eskimo who was one of her crew. This boat, which was powered with a 32 h.p. Standard motor, took part in the Hudson Bay Expedition which left Montreal on the 5th of July, 1912, and returned on the 5th of September, landing at Sydney, Cape Breton. Just what experiences she had is not known to us, but from the fact that she got back, it can be deduced that her Standard motor did its full share of the work.

Catboat used for sword fishing, powered with a 7 H. P. heavy duty, Bridgeport motor.

* * *

Ferro Racing Record.

A record which any man would be proud of is held by Mr. H. B. Smith, of Babylon, N. Y. In 27 races, embracing a period of years from May 30, 1910, to September 1, 1913, he has entered his boat, powered with a 1910 25 h.p. Ferro engine, and has never failed to capture a place. Neither has he been forced to take second and third place very often, as his record shows a total of 20 firsts. As a fitting climax to his consistent winning he captured the Point Trophy for 1913 of the South Shore Yacht Club, taking 8 points out of a possible 9.

* * *

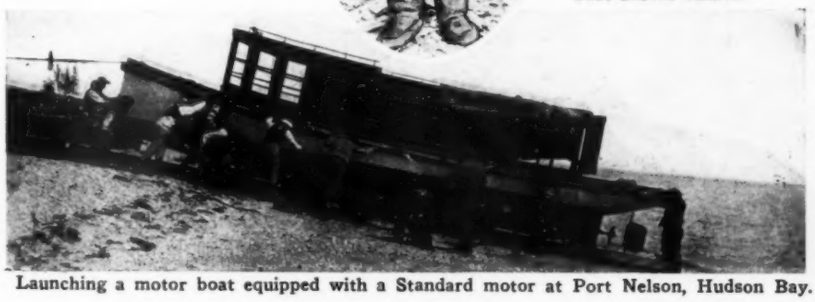
New Metropolitan Head for Buffalo Motors.

The Buffalo Gasoline Motor Company has announced the appointment of James Edward Baldwin as manager of the company's New York branch, Hudson Terminal Bldg., 30 Church Street, filling the vacancy caused by the death of the late W. S. MacLeod.

Mr. Baldwin, who has already taken up his new duties, is widely known in the gas engine and motor boat field. He is a designer of some note, among his best known successes being the Fulton engine and the Kent engine. His activities in the engine business have taken him to many parts of the world, including South America and Mexico. His experience is by no means limited to the marine field, for he has successfully installed many stationary power plants which presented unusual problems. He is a member of the American Society of Mechanical Engineers and a number of boating organizations. For some time past, he has been in private practice.

Mr. Baldwin will continue and expand the scope of the Buffalo service department established by Mr. MacLeod, and he will have charge of all sales in New York and the surrounding territory.

One of the crew of the boat shown below.



Launching a motor boat equipped with a Standard motor at Port Nelson, Hudson Bay.

* * *

New Van Blerck Factory in Operation.

The Van Blerck Motor Company commenced full operations in their new plant on December 10th, and now that they are under way, have invited their friends among the boat builders, distributors and customers to visit them in their new plant at Monroe, Mich. They claim it will be worth the while of any of the above to go over their shops and that everyone who comes will be made thrice welcome. Monroe is only forty-five minutes from Toledo and one hour and a quarter from Detroit, via the fast electric limited trains, which will make it very convenient for those traveling between New York and Chicago to stop off for a visit.

The December issue of MoToR BoatinG carried the architect's idea of the ultimate plant of the Van Blerck Motor Co., the first instalment of this plant is presented herewith. This last mentioned building is 176½ feet long by 60 feet wide, with offices in the front part of the building. The auxiliary building to the left is the storage and power plant, this being 20 feet wide by 55 feet long. In this new plant, the Van Blerck Company claim that every advantage has been taken of modern and efficient construction and equipment, which has resulted in giving them one of the finest marine engine plants in the country. The main shop is of concrete, brick and steel, thoroughly fireproof, and the immense amount of window space in the side walls and monitors floods every corner of the building with light. The test room, located in one corner of the main shop has a capacity of testing five engines at one time, is equipped with high powered water brakes, and has as an unusual and important feature special arrangements for testing the engines at any desired angle so that the requirements of any size or type of boat may be met before the engine leaves their works.

Even in this day of achievements it is interesting to note that this factory was completed in 10 days. To put up a factory in this time is going some—but as the Van Blerck people point out, the phrase "going some" has long been associated with their name.

* * *

DeLong Business Growing.

The export business of the DeLong Engine Company has been growing so rapidly that they have found it necessary to have an export office in New York City. This office is located in the Whitehall Building, at 17 Battery Place, in charge of Mr. R. V. Warman.

Mr. Arthur P. Homer, of 154 State St., Boston, Mass., will handle DeLong engines in Boston for the season of 1914. Mr. Homer will carry a stock of the various sizes, so that he can make immediate shipment from the Boston store.

The DeLong Engine Company, of Webster, N. Y., manufacturers of high grade, low priced engines recently placed on the market a 10 h.p., 3-cylinder engine which retails at $150. A booklet fully describing this engine will be sent to any interested parties.

* * *

A Correction.

In the December issue on page 88 we published a description with cut of the bulb shank mooring anchor made by the Fairhaven Foundry Co. The address of this concern was inadvertently given as Fairhaven, Conn., whereas the correct address is Fairhaven, Mass.

* * *

Water Lily.

A very successful boat of the type that has come to be quite correctly designated as the "limousine of the water," is Water Lily, owned by Mrs. Massey-Treble, of Toronto.

Water Lily was built by the Schofield-Holden Machine Company, of Toronto, especially to meet Mrs. Massey-Treble's ideas of an elaborate, yet serviceable day cruiser, and the completed boat is certainly a credit to the designers and builders.

She is 38 feet long by 7¼ feet beam and is powered by a four-cylinder Model K Scripps motor developing 48 b.h.p. at 1,000 revolutions per minute. Though a very roomy boat, she has shown an exceptional turn of speed and has more than exceeded her contract speed of 15 miles per hour.

Water Lily was launched in Toronto last spring, and after passing through rigid trials was shipped to the country estate of Mrs. Massey-Treble on the Muskoka Lakes, where it has excited much favorable comment on account of its reliability, speed, seaworthiness and grace of action.

New factory of the Van Blerck Motor Co. recently put in operation.

• • •

Erd's Increase in Business.

The Erd Motor Company, of Saginaw, Mich., report a great increase in their business this fall and coming winter.

The demand for their new four-cylinder, four-cycle, 25 h.p. en bloc motor is greatly responsible for the increased sales.

This new motor, which is now being advertised in MoToR BoatinG, is not an experiment, but one that has been thoroughly tested out and perfected for several years until it has been brought up to the highest point in efficiency.

Some very interesting features are incorporated in this engine, such as, every bearing in the entire motor being interchangeable, the bearings larger than those of any other motor of the same bore and operating at the same speed. The diameter of the crankshaft and crank pins are 1¾ inches. Liberal lengths are provided in both the connecting rod bearings and main shaft bearings. Cam shaft is a one-piece drop forging of special steel. The en bloc cylinder has many commendable features in its design. The intake and exhaust manifolds are cast integral and are water jacketed, maintaining a uniform temperature which pre-heats the gas before entering the combustion chamber and is largely responsible for the extreme economy of this motor.

The Erd Motor Company have added greatly to their equipment and now have installed special tools for manufacturing this particular type, with the result that they are able to maintain extreme high quality and sell the motor at a very low price.

The price of the standard type motor with iron base is $385 net. The high speed type with aluminum base is $425 net.

This includes Joe's reverse gear on extended base, magneto, dual system, enclosed type Kingston carburetor with hot air attachment and all other equipment, such as spark plugs, wire, batteries, a gallon of lubricating oil, can of grease, etc.

• • •

Supplee-Biddle Hardware Co.

Hardware interests in Philadelphia, Pa., have just been advised of the consolidation of two of the oldest and most prominent hardware companies of their city into a new corporation to be known as the Supplee-Biddle Hardware Company. The combining firms are the Biddle Hardware Company, of 5th and Commerce Sts., and the Supplee Hardware Company, of 5th and Market Sts. The new concern is incorporated for $1,000,000 and will be the largest wholesale hardware distributing house along the Atlantic coast.

Both companies, which have a wide distribution in the United States and foreign countries, will be located after the merger in the present building of the Biddle Hardware Company heightened to eight stories and five additional buildings, three on the east and two on the west, adjoining the present structure. This will give them the largest and most up-to-date hardware house east of Chicago. Modern equipment in the new buildings will permit of economical and rapid handling of merchandise.

A policy of great interest to the trade which will be put into effect in the new concern is that of co-operation on the part of employees, who will be given an opportunity to become stockholders. President Baum has already used this with great success in the Supplee Hardware Company.

The Biddle Hardware Company, known to the mechanical and manufacturing world as the distributors of Monel Metal, was organized by R. and W. C. Biddle in 1837 and occupied a small building on lower Market St. fronting on the old public market. Charles M. Biddle, the head of the company, entered into the partnership one month before his 21st birthday and in 1873 became the sole owner of the business.

Edward Knight became associated with the business about the same time and later was taken into partnership, together with Charles M. Biddle, Jr., and Robert Biddle, 2d. All have been in active management of the business. A few years ago a modern building was erected for the company at 513-515-517 Commerce St.

The Supplee Hardware Company originated with the firm of Conrad & Walton, also located in the early days on the lower part of Market St. In 1865 this firm was succeeded by Lloyd, Supplee & Walton. Messrs. Lloyd and Supplee went to Philadelphia from Wisconsin at that time. Later the firm became Lloyd & Supplee, and in 1868 it was incorporated as the Supplee Hardware Company. W. W. Supplee being the principal owner until last March, when his interest was sold to Mr. Baum.

• • •

Sterling Factory Working Double Time.

The Sterling Engine Company's factory has been compelled to put on a night shift, starting from December 10th, the extra shift to work five nights a week. This course has been found necessary owing to the large number of orders that have been placed with them during the past few weeks. They state that never before in the history of their business have they experienced such a flood of orders and the prospects for the future are exceedingly bright, their only possible trouble being that their plant may not have the facilities to fill all orders that will be received, regardless of the fact that its capacity was more than doubled early in 1913.

• • •

Launch Service in Manila Bay.

J. F. Boomer, correspondent for the Daily Consular and Trade Reports, at Manila, reports that the insular collector of customs has approved a proposal of a company seeking a license to operate a gasoline launch service to convey passengers to and from ships anchored in the river's mouth and in the bay. One of the rules established forbids the operation of such a service after 10 p.m. The concessionaries desire this embargo lifted, as they expect much of their traffic to be available after this hour. One of the aims of the service is to supply transportation to tourists and through passengers who desire to go ashore to visit friends and attend functions lasting until late hours.

• • •

More Regal Sales.

The Regal Gasoline Engine Co. have just shipped to Savannah, Ga., a 28 h.p. heavy duty Regal engine for use in the government survey launch "Spray." This launch is used around Brunswick, Ga., for surveying by the United States engineers at Savannah. This same office has a number of other Regal engines in its use.

The 28 h.p. engine is one of the late model kerosene engines and is a type which is being sold almost exclusively by the Regal Engine Co. for use both in commercial and pleasure crafts. The engines give as satisfactory service operating upon kerosene as upon gasoline, and show as much power. The saving in the fuel cost consequently is considerable. The ability of the Regal engine to operate satisfactorily upon a low-grade fuel was one of the deciding factors in the sale of this last engine to the United States government.

• • •

Automatic Exports.

Recent announcements made by the Automatic Machine Co., makers of the well-known automatic four-cycle marine engine, indicate a steady increase in their export business. Among other foreign orders filled during the past few months, that from Rangoon, India, was, perhaps, the most noteworthy, for it called for five large engines.

Australia, where the automatic is well established, continues to show a steady gain; the latest shipment included several high-powered motors and a 75 h.p. automatic gas producer engine. A great many engines—ranging from 6 to 40 h.p.—have recently been shipped to Newfoundland, and almost without exception these have been equipped with the automatic kerosene attachment, allowing the use of both kerosene and gasoline.

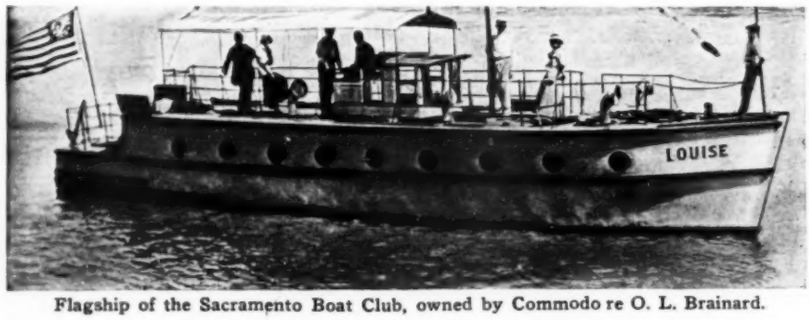
The sales department also announces that the company is now represented in London, England, by the McNab Marine Appliances, Ltd.

• • •

Red Wings for Finland.

The Red Wing Motor Company, of Red Wing, Minnesota, report that they have received an order for three Red Wing Thorobred motors for A. B. Victor Forselius, Abo, Finland. These motors are to be equipped with a kerosene vaporizer attachment, which is standard practice with this company when the same are specified.

• • •



Flagship of the Sacramento Boat Club, owned by Commodore O. L. Brainard.

A Large Lawley Built Motor Yacht.

The George Lawley & Son Corporation have in the course of construction at their yards what will be the largest gasoline motor yacht in the world—a yacht 154 feet long, 20 feet beam and 7½ feet draft, from the designs of Gielow & Orr.

This boat is modern in every way, and is equipped with every modern piece of apparatus that will bring comfort to the owner—Mr. L. T. Peterson, Youngstown, Ohio. Ice machines, heating and ventilating systems, electric windlasses and winches; carries four boats in its davits and 6,000 gallons of gasoline in the tanks, which will make it possible for this boat to go abroad without carrying an extra supply of gasoline.

The unusual feature of this boat is its power plants, which are furnished by the Winton Gas Engine & Mfg. Co., of Cleveland, Ohio, and consist of two 6-cylinder 200 h.p. main engines, two 5 k.w. 6-cylinder lighting sets and generator engines; also two 6-cylinder tender motors, one 7½ h.p., 2¼" x 3" in the 18-foot launch, and one 15 h.p. 3 x 4, 6-cylinder in the 25-foot tender.

The engine-room will be finished in white, the main engines and all the auxiliaries being white enamel to bring about what is considered to be the finest engine-room in existence. This boat is a splendid addition to the fleet of gasoline cruising yachts, and we believe will demonstrate to the public that it is not necessary to go to the extremes in steam to get serviceable and ample accommodations in large boats.

• • •

Arroyo Has a Sterling Motor.

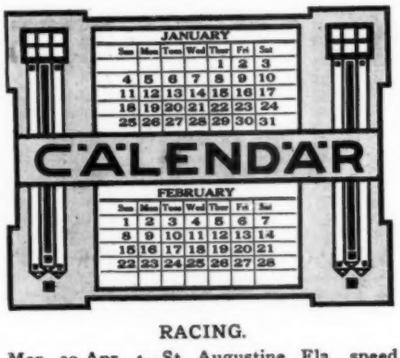
The Sterling Engine Co., of Buffalo, N. Y., inform us that the 46-foot cruiser Arroyo, described on page 35 of the December issue, is powered with one of their 45 h.p., 6-cylinder, 5½-inch x 6-inch medium duty machines, which gives this boat a speed of 15 miles.

• • •

Motor Craft for the Kongo River.

Vice-Consul General Harry A. McBride, Boma, Belgian Kongo, states that the Kongo River affords the principal means of transportation for Central Africa. The stern wheel, shallow-draft type type of river steamer has been in general use, he says, but there seems to be a movement in favor of replacing these vessels with motor craft.

The use of motor-driven vessels for colonial work is progressing rapidly, not only in the colonies of Great Britain in Africa, but also in those of other countries, and it appears that the Kongo is a particularly suitable district for motor craft. There is a large passenger and freight traffic on the river, and a pipe line has been laid so that oil will be available in large quantities and at comparatively low prices. Already quite a number of relatively small boats have been sent out to the district, but Kasai, a larger vessel, has just completed its trials, and if the experiment is successful, it is probable that vessels of a similar type will replace many steamships now plying on the Kongo River. Kasai has a loaded draft of only 3½ feet, is 138 feet in length, and has a 9½-knot speed.



RACING.

Mar. 30-Apr. 4—St. Augustine, Fla., speed boat races.

June 6—Philadelphia to Bermuda.

June 20—Annual Ocean Race, New Rochelle to Block Island, 100 miles.

June 27—Sixth Annual Race, New York to Albany and return, 235 nautical miles. New York Motor Boat Club.

July 4—Colonial Yacht Club Race, New York to Cornfield Light Ship and return.

July 22—D. R. Y. R. A. Cruiser Race, Philadelphia to Baltimore, 369 nautical miles.

July 29-30-31—Gold Challenge Cup Races for speed boats, Lake George, N. Y.

SHOW DATES.

Jan. 31—Feb. 7, New York Motor Boat Show.

Feb. 21—28, Toronto National Motor Boat Show.

Feb. 28—Mar. 7, Chicago Motor Boat Show.

MOTOR BOATING ADVERTISING INDEX

A

Aaron Automatic Bilge Pump Co. 68
American Engine Co. 93
American Life Saving Garment Co. 74
American Launch Co. 66
American Motor Parts Co. 68
Anderson Engine Co. 82
Anderson Spark Plug Co. 78
Apple Electric Co., The. 64
Aristos Co., The. 74
Atkin-Wheeler Co. 59
Automatic Bilge Bailer Co. 74
Automatic Machine Co., The. 82

B

Balbridge Gear Co., The. 95
Bath Marine Construction Co. 76
Binney, Arthur 59
Bosch Magneto Co. 78
Boston Varnish Co. 74
Boucher Mfg. Co., H. E. 74
Bowes & Mower 59
Breaznell, Jos. H. 68
Bridgeport Bronze Marine Paint Co. 74
Bridgeport Motor Co., Inc. 92
Brooks Mfg. Co. 95
Brown-Collins Gas Engine Co. 74
Bruns, Kimball & Co., Inc. 59
Bryant & Berry Co. 95
Buermann, August 64
Buffalo Gasolene Motor Co. 100
Byrne, Kingston & Co. 94

C

Caille Perfection Motor Co. 65
Camden Anchor-Rockland Mach. Co. 64
Campbell Co., A. S. 74
Cape Cod Power Dory Co. 89
Carlisle & Finch Co. 82
Carlyle Johnson Mach. Co., The 89
Carpenter & Co., Geo. B. 95
Chelsea Clock Co. 72
Chicago Varnish Co. 72
Classified Advertisements 57-58
Cleveland Auto Boat Mfg. Co. 82
Coe (W. H.) Mfg. Co. 72
Columbian Brass Foundry 72
Cosmopolitan 68
Cox & Stevens 48-59
Cragg Motor Mfg. Co. 72
Craig, James 59
Crockett Co., The David B. 72
Cuno Eng. Corp., The 72
Curtiss Co., J. H. 64
Curtiss Aeroplane Co., The 87

D

Darrow Steel Boat Co. 72
Davis Boat Works Co., The 64
Dayton Electrical Mfg. Co. 68
Defoe Boat & Motor Works 64
DeLong Engine Co. 72
Detroit Boat Co. 78
Detroit Engine Works 70-72-78
Detroit Lubricator Co. 94
Doman Co., H. C. 81
Doubleday, Page & Co. 78
Durkee & Co., C. D. 79

E

Edison, Inc., Thomas A. 87
Elco-Bayonne (The Electric Launch Co.) ...2nd Cover
Eldredge (Albert E) Corp. 64
Electric Goods Mfg. Co. 72
Electric Tachometer Co., The 72
Emmons Specialty Co. 72
Erd Motor Co. 92
Evans Stamping & Plating Co. 62
Evinrude Motor Co. 74

F

Fairhaven Iron Foundry Co. 72
Fay & Bowen Engine Co. 63
Fellows Yacht & Launch Co. 59
Ferdinand & Co., L. W. 76
Ferro Machinery & Foundry Co. 90
Fiske Bros. Refining Co. 68
Fogg, M. W. 82
Frisbie Motor Co. 82

G

Galusha, A. L., & Co. 62
Gardner, Wm., & Co. 51
Gas Engine & Power Co. and Chas. L. Seabury Co., Consolidated 55-75
Gasoline Engine Equipment Co. 70
General Electric Co. 70
Gielow & Orr 53
Gies Gear Co. 70
Gill & Sons, P. H. 76
Gillespie, Chas. H. & Sons 81
Globe Gas Light Co. 62
Gray Motor Co. 98
Gray-Hawley Mfg. Co. 70
Gries Engine Co. 70

H

Hacker, John L. 70
Hall Co., W. S. 94
Hall Gas Engine Co. 70
Hand, Wm. H., Jr. 59
Harper's Bazar 74
Harris (A. W.) Oil Co. 72
Hatch Oil Engine Co. 68
Hearst's Magazine 64B
Henke Mfg. Co. 68
Henrick's Novelty Co. 88
Herbert & Huesgen 68
Holmes Motor Co., Inc., The 3rd Cover
Howard Cruiser Works 70
Hyde Windlass Co. 88
Hydrex Silent Exhaust Works 82

J

Janney, Steinmetz & Co. 81
Jencick Motor Co. 68
Jennings Yacht Agency 56
John, William Edgar 59
Jones, Frank Bowne 50
Jones Co., S. M. 89
Jordan Bros. Lumber Co. 62

K

Kahlenberg Bros. 64A
Kenyon Co., R. L. 60
Kermath Mfg. Co. 86
Koven & Bros., L. O. 68
Krice Carburetor Co. 83
Kroh Mfg. Co. 83
Kuhls, H. B Fred. 78

L

Lamb Engine Co. 100
Lawley, Geo., & Son, Corp. 78
Leary Gasolene Engine Co. 78
Lebby Engineering Co., The 78
Leece-Neville Co., The 78
Lisk, Geo. A. 62
Lobee Pump & Mach. Co. 68
Lockwood-Ash Motor Co. 75
Loew-Victor Engine Co. 3rd Cover
Luders Marine Construction Co. 54-59

M

McClellan Top & Hood Co. 62
McFarland Foundry & Machine Co. 76
McQuay-Norris Mfg. Co. 81
Marburg Bros., Inc. 68
Marine Compass Co. 62
Masten Co., Theo. H. 62
Mathis Yacht Building Co. 78
Matthews Boat Co., The 77
Maximotor Makers 62
Mea Magneto 68
Mechanical Devices Co., Inc. 62
Mercury Motor Co. 88
Mianus Motor Works, The 62
Michigan Steel Boat Co. 68
Michigan Wheel Co. 83
Miller, Chas. E. 62
Mills, R. S. 83
Milton Boat Works 76
Milwaukee Yacht & Boat Co. 60
Monarch Valve Co. 93
Monitor Boat & Engine Co. 72
Morgan Mfg. Co. 83
Morris, B. N. 62
Morristown Boat & Engine Works 76
Morss Co., A. S. 83
Mosinger Device Mfg. Co. 62
Mullins, W. H., Co. 78
Murray & Tregurtha 76
Murphy Varnish Co. 70

N

Narragansett Chemical Co. 76
National Assn. of Engines & Boat Mfgrs. 64B
National Gear Co. 78
Naval Architects & Yacht Brokers 59
New York Gear Works 60
New York Yacht, Launch & Engine Co. 83
Niagara Motor Boat Co. 88
Niagara Motors & Mfg. Co., Inc. 85
Nicholds Co. 64
Nicholson File Co. 76
Nock, Frederick S. 59

O

Oakes & Dow Co., The 89
Oshkosh Metal Products Co. 84

P

Packard Electric Co. 91
Page Engineering Co. 74
Palmer Bros. 76
Pearl Machine Co. 62
Peerless Marine Engine Co. 69
Pioneer Boat & Pattern Co. 84
Pneumatic Mfg. Co. 60
Poekel, T. S., & Co. 59
Prest-O-Lite Co. 67
Pyrene Mfg. Co. 84

R

Racine Boat Co. (Racine) 93
Red Wing Motor Co. 71
Regal Gasoline Engine Co. 85
Reid Wheel Co. 64
Rice Bros. Co. 62
Richardson, G. R. 62
Robbins Co., L. D. 64
Roberts Motor Co. 93
Robertson Bros. 64
Rose Mfg. Co. 64

S

S. R. Mfg. Co. 64
Samson Cordage Works 64
Sands & Sons Co., A. B. 66
Scripps Motor Co. 66
Seabury & Co., Charles L. 55-75
Seaman, Stanley M. 49
Shaw Propeller Co. 80
Sherman, Eugene M. 82
Smalley-General Co. 64
Smith & Co., Edward 64
Smith-Serrell Co., Inc. 77
Snow & Petrelli Mfg. Co. 80
Standard Co., The 96-97
Standard Gas Engine Co. 85
Standard Motor Construction Co. 2nd Cover
Standard Oil Co. 64
Stanley Co. 64
Star Ball Retainer Co., The 84
Stearns-McKay Mfg. Co. 64
Sterling Engine Co. Back Cover
Sturtevant (B. F.) Co. 64

T

Tams, Lemoine & Crane 52
Thermos Silencer Works 60
Thomas & Co., W. E. 64
Tiebout, W. & J. 64
Times Square Auto Co. 90
Toppan Boat Mfg. Co. 64
Torrey Roller Bushing Works 91
Trebert (H. L. F.) Engine Works 64
Trimount Rotary Power Co. 84
Tuttle Motor Co. 64

U

Universal Machine Co. 84
Universal Motor Boat Supply Co. 84
Universal Safety Mattress Co. 64
Upson-Walton Co., The 72

V

Valentine & Co. 61
Valley Boat & Engine Co. 83
Van Blerck Motor Co. 73
Vim Motor Co. 80
Vulcan Engine Works 84

W

Water Craft Co., The 72
Waterman Marine Motor Co. 80
Watkins Motor Co., The 78
Watts, J. Murray 59
Whitaker, Morris M. 59
Whittelsey & Whittelsey 59
Wicker-Kraft Co. 78
Wilcox, Crittenden & Co., Inc. 64A-86
Willis Co., E. J. 90
Wilmarth & Morman 78
Winton Gas Engine & Mfg. Co., The 99
Wisconsin Mach. & Mfg. Co. 85
Wisconsin Motor Mfg. Co. 66
Wolverine Lubricants Co. 70
Wolverine Motor Works 85
Wonder Mfg. Co. 64

Y

Yankee Co., The 70
Youngs, Wm. P. & Bros. 91

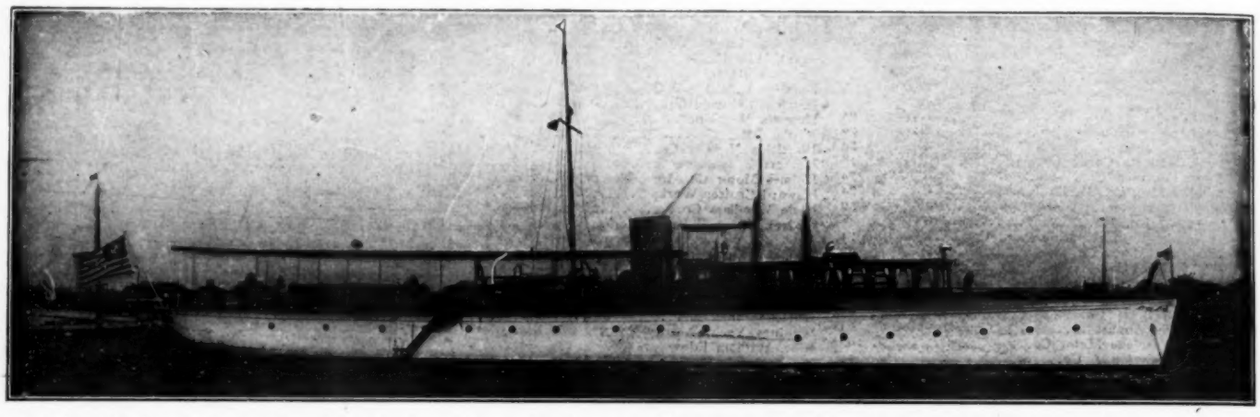
COX & STEVENS

NAVAL ARCHITECTS AND YACHT BROKERS

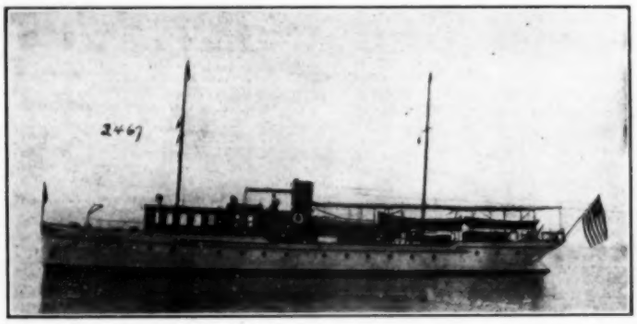
Telephone
1375 Broad

15 William Street
New York City

We have a complete list of all steam and power yachts, auxiliaries and houseboats available FOR SALE and CHARTER
A few are shown on this page. Plans, photographs and full particulars mailed on request

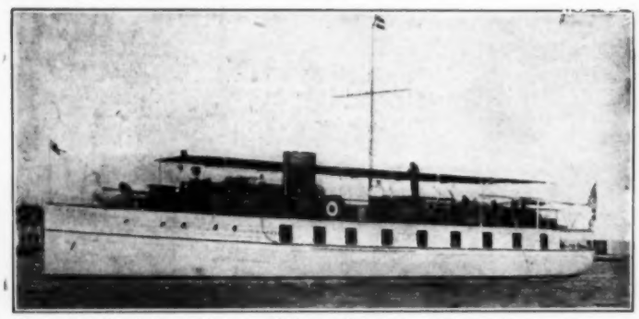


No. 885.—For Sale or Charter.—Exceptionally handsome, fast, steel, twin-screw cruising power yacht; 118 x 16.6 x 5 ft. Built 1910, from our design. Speed up to 18 miles; two 300 H. P. Craig motors, three double staterooms, main and dining saloons, two bathrooms, electric lights, etc.; handsomely finished and furnished. Probably the most desirable proposition ever offered in a large gasoline yacht. Apply to Cox & Stevens, 15 William St., New York.

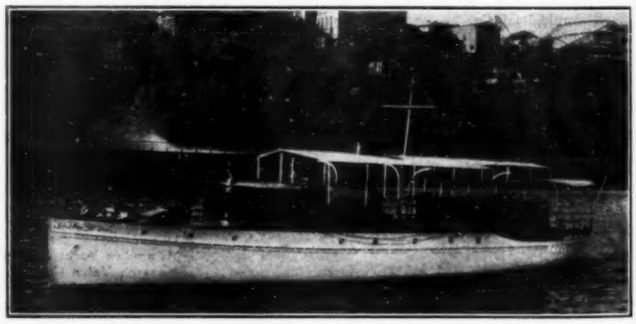


No. 2467.—Now in commission in Florida waters. Modern, twin-screw cruising power yacht; 98 x 16 x 4 ft. Built 1911 from our designs. Speed 14-16 miles; two 100-125 h.p. 6-cyl. air-starting Standards. Large accommodation includes five staterooms and two bathrooms aft; dining saloon and galley forward. Price attractive. Cox & Stevens, 15 William St., New York City.

No. 2335.—For Sale—Practically new twin-screw cruising power yacht; 83 x 13.6 x 3.6 ft. Launched last spring. Speed 14 miles. Two 6-cyl. 20th Century motors. Two staterooms, large main and dining saloons, bath, etc. All conveniences. Cox & Stevens, 15 William St., New York.

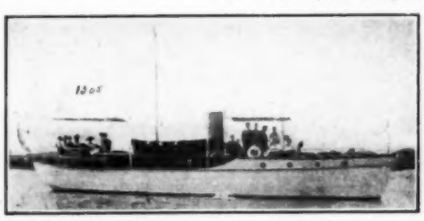


No. 1662.—For Sale or Charter.—Modern twin-screw power houseboat; 90 x 17 x 3.5 ft. Built 1911. Speed 10-12 miles. Four staterooms, large saloon, two bathrooms, electric lights, etc. Price attractive. Cox & Stevens, 15 William St., New York.

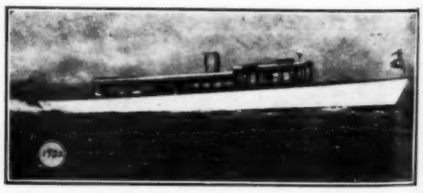


No. 2134.—Excellent Bargain.—Up-to-date gasoline cruiser; 71 x 12.3 x 3.5 ft. Built 112. Speed, 13 miles; two 20th Century motors. Dining saloon and galley forward; two staterooms, bathroom, etc., aft. Cox & Stevens, 15 William Street, New York.

No. 316.—For Sale or Charter.—Lawley built twin-screw power yacht; 96 x 14 x 4.3 ft. Flush deck. Large accommodation. Speed, 12-14 miles; two 50 h.p. Standards. Price very low. Cox & Stevens, 15 William St., N. Y.



No. 1305.—For Sale.—Raised deck cruiser; 50 x 10.6 x 3.6 draft. Built by Britt Bros., 1910. 25-35 Standard; speed, 11 miles. Double stateroom, saloon, etc. Electric lights. Interior finish African mahogany. In good condition. Price attractive. Cox & Stevens, 15 William St., N. Y.



No. 1932.—Exceptional bargain. Attractive, high speed day cruiser; 30 x 8 ft. Speed, 20 miles; 125 h.p. 6-cyl. Craig motor. In first-class condition. Cox & Stevens, 15 William St., New York.

STANLEY M. SEAMAN

TELEPHONES, 3479 3171 CORTLANDT

BRITISH CORRESPONDENT

YACHT BROKER

220 BROADWAY, N. Y.

(ESTABLISHED 1900)

CABLE, "HUNTSEA," N. Y.

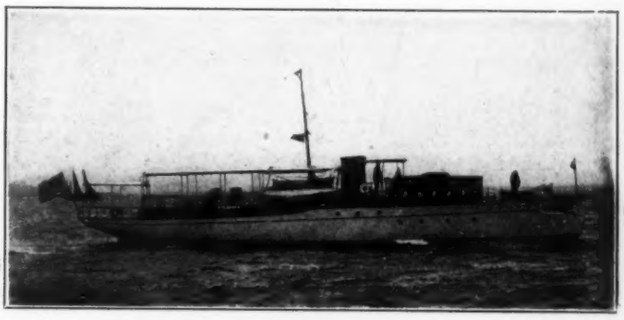
MARINE INSURANCE

Handsome 1914 Catalog showing over 200 Pictures of the 2,000 or more Yachts For Sale and Charter, Sent on Request.

SPECIAL NOTICE.—See December, 1913 "Motor Boating," pages 105 to 136, inclusive, showing full list of attractive offerings. Complete data upon request.

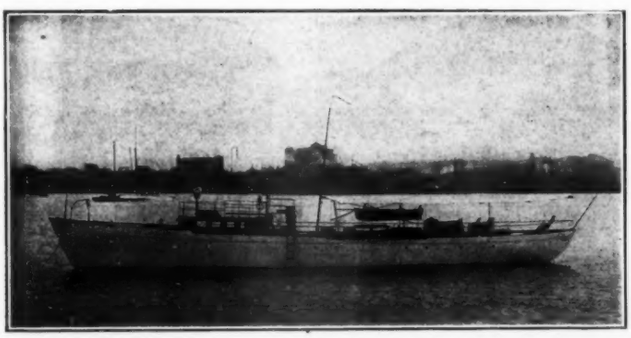
7094.—98 Ft. Twin Screw Sea Cruiser. 4 staterooms; 2 baths. Berths 10. Two 100 Standards; speed 12 knots. All modern conveniences. Stanley M. Seaman, 220 Broadway, New York.

Please mention MOTOR BOATING.



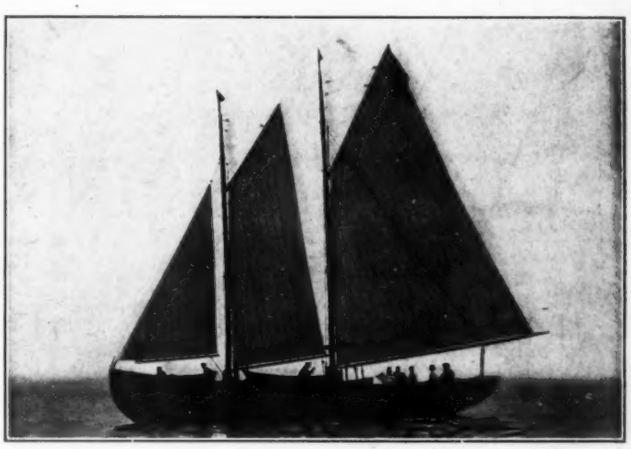
7544.—90 Ft. Twin Screw Sea Cruiser, launched 1912. 3 double staterooms; berth 8; bathroom. Two 60-90 Sterlings; speed 12 knots. Exceptionally able. Stanley M. Seaman, 220 Broadway, New York.

Please mention MOTOR BOATING.



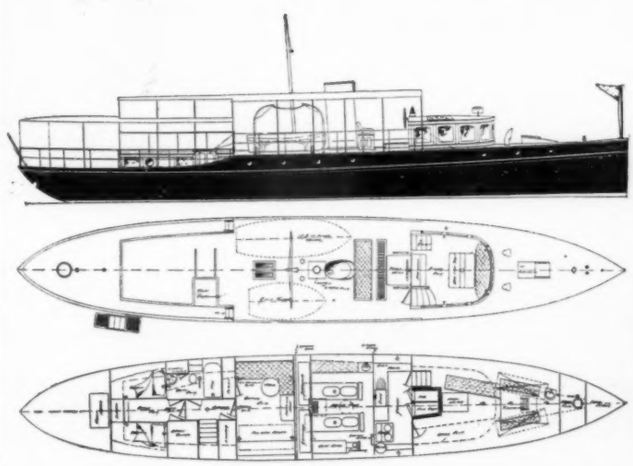
7439.—96 Ft. Twin Screw Lawley Coast Cruiser For Sale or Charter. 3 staterooms berth 7; bath; two 50-65 Standards; speed 12 miles. In commission Miami. Stanley M. Seaman, 220 Broadway, New York.

Please mention MOTOR BOATING.



11664.—Keel Seagoing Cruiser. 53 ft. Launched 1913. 25 h.p. motor. Stanley M. Seaman, 220 Broadway, New York.

Please mention MOTOR BOATING.



7555.—71 Ft. Twin Screw Coast Cruiser, launched 1912. Two double staterooms; bath. Two 45 h.p. 20th Century engines; speed 13 miles. Cost $18,000. Sacrificed. Stanley M. Seaman, 220 Broadway, New York.

Please mention MOTOR BOATING.

7403.—42 Ft. Coast Cruiser. Stateroom; saloon; 30 h.p. Lamb; speed 10½ miles. Steers and controls from both bridge and cockpit. Stanley M. Seaman, 220 Broadway, New York.

Please mention MOTOR BOATING.

FRANK BOWNE JONES, Yacht Agent

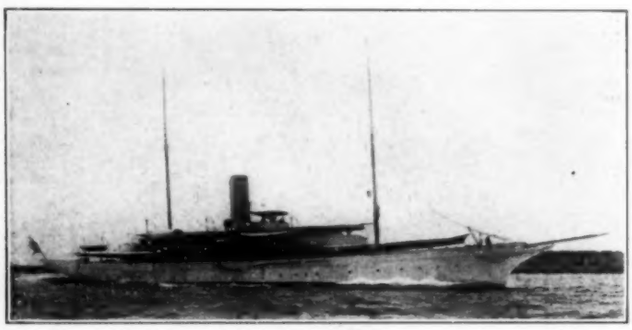
29 Broadway, New York

Telephone, Rector 3890

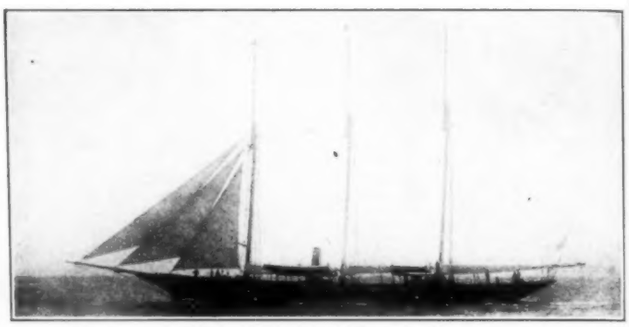
High-Class Yachts of all types for sale and charter

NAVAL ARCHITECTURE **MARINE INSURANCE**

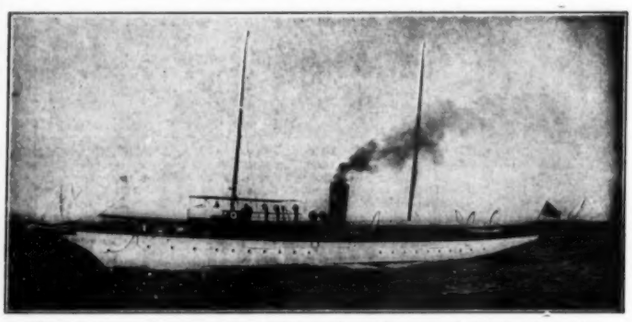
Let Me Know Your Requirements



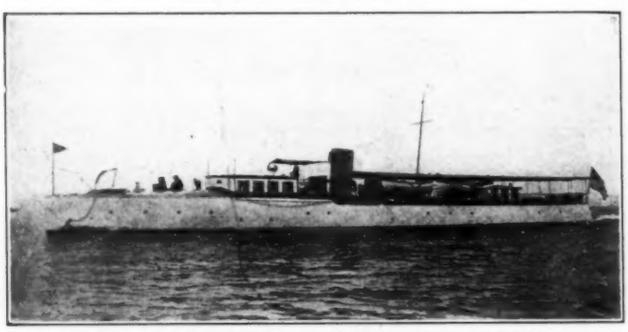
No. 3852.—200 ft. sea-going steam yacht; a splendid vessel at a reasonable price; for sale or charter.
Please mention MOTOR BOATING.



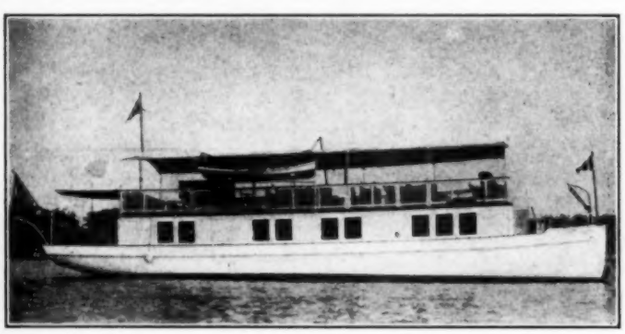
No. 2558.—Sea-going auxiliary; length 165 ft. One of the best yachts of this type.
Please mention MOTOR BOATING.



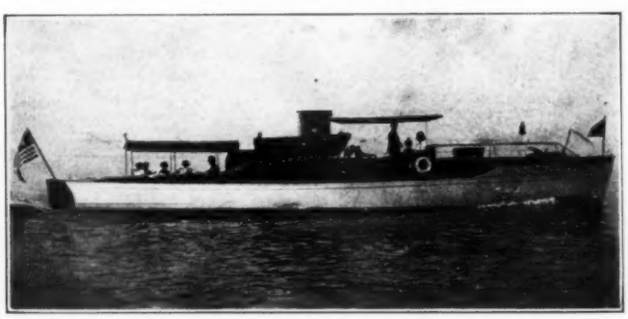
No. 5431.—170 ft. steel steam yacht; good speed; economical; attractive price.



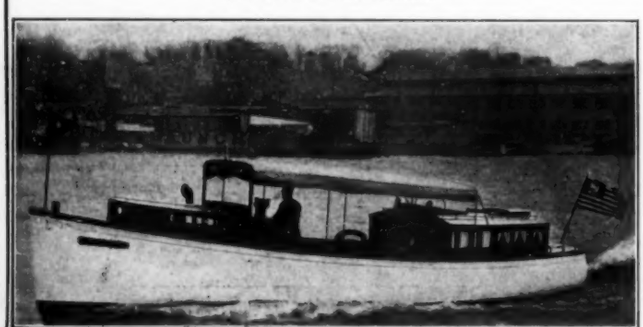
No. 4806.—135 ft. steel steam yacht of the "Express" type; fast and commodious.
Please mention MOTOR BOATING.



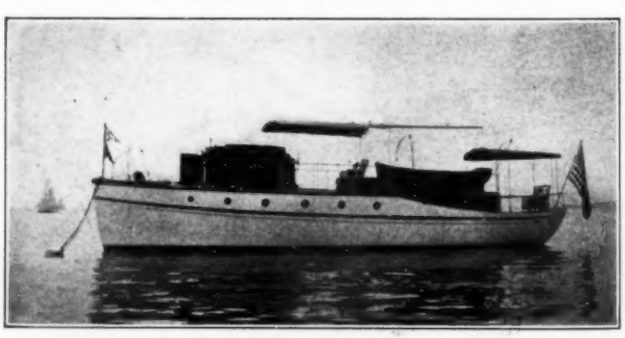
No. 3284.—60 ft. power houseboat; strong and seaworthy; well arranged.
Please mention MOTOR BOATING.



No. 6568.—60 ft. twin-screw gasoline cruiser; speed 20 miles.
Please mention MOTOR BOATING.



No. 6564.—45 ft. Seabury day boat; good as new; speed 13 miles.



No. 6409.—45 ft. gasoline cruiser; built last year; high-class boat.

WILLIAM GARDNER FREDERICK M. HOYT PHILIP LEVENTHAL

WILLIAM GARDNER & CO.

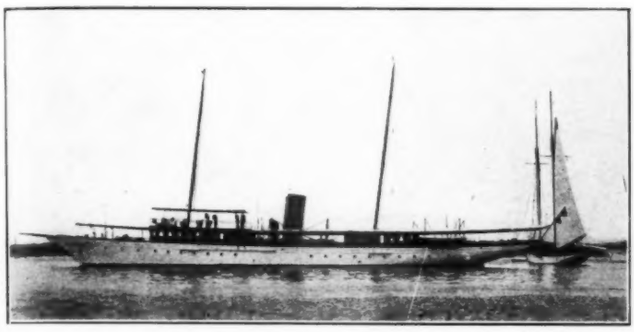
NAVAL ARCHITECTS, MARINE ENGINEERS AND YACHT BROKERS

Telephone Call
3585 Rector

1 BROADWAY, NEW YORK

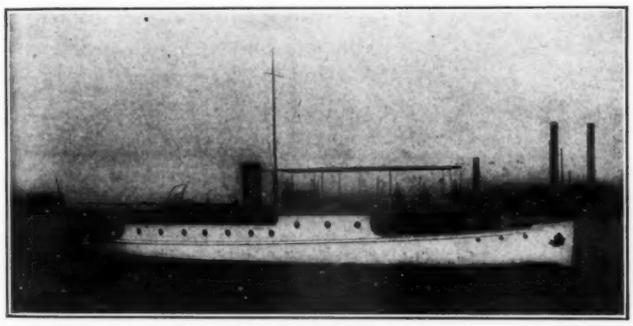
Cable Address
Yachting, N. Y.

WE HAVE A COMPLETE LIST OF YACHTS OF EVERY DESCRIPTION FOR SALE AND CHARTER. PLANS, PHOTOS AND FULL PARTICULARS FURNISHED ON REQUEST.

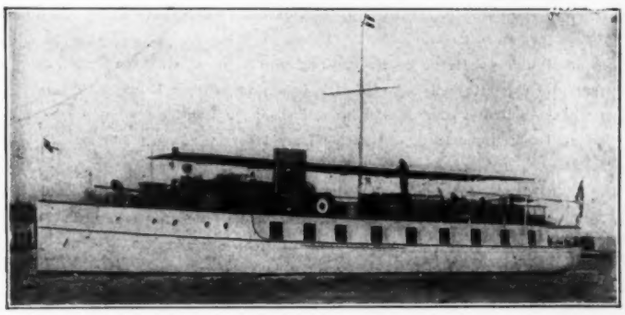


No. 482.—Offered by Estate.—170 ft. steel steam yacht; 7 staterooms, 4 baths. A1 condition.

No. 1944.—Handsome, commodious, 83 ft. gasolene yacht, recent build; two 75 h.p. motors; speed 15 miles.

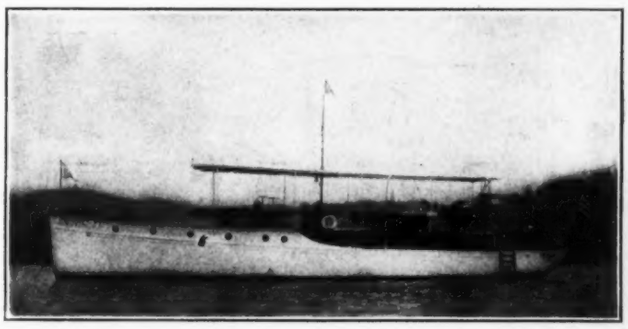


No. 1429.—Gasoline cruiser, length 86 ft.; light draft; thoroughly overhauled and refitted; large deck space.

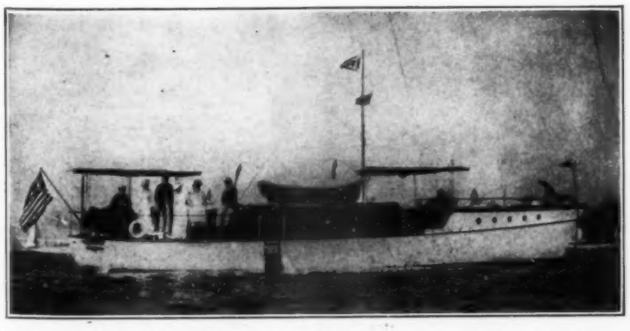


No. 1745.—Combination cruiser and houseboat, 90 ft. x 17 ft. x 3 ft. 4 in.; twin screw; very able and finely appointed.

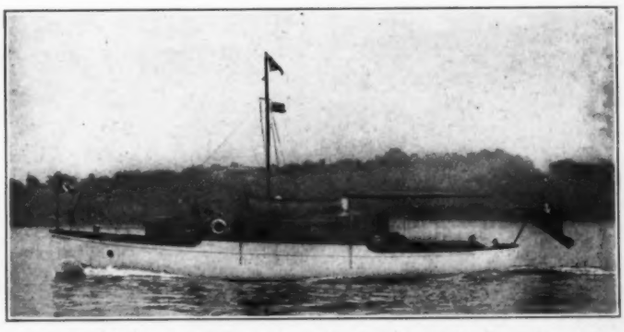
No. 1244.—Sale or Charter.—Florida waters.—Twin-screw Lawley cruiser, 96 ft.; 3 staterooms; bath; Standard motor.



No. 1961.—For Winter charter, delivered Florida waters, 60 ft. cruiser; brand new; speed 12 miles.



No. 1701.—Raised deck cruiser, 56 ft., 20th Century motor; good accommodation; reasonable price.



No. 1256.—Bridge deck cruiser, 45 ft. x 9 ft. 6 in.; Standard motor, 18 h.p.; first-class condition.

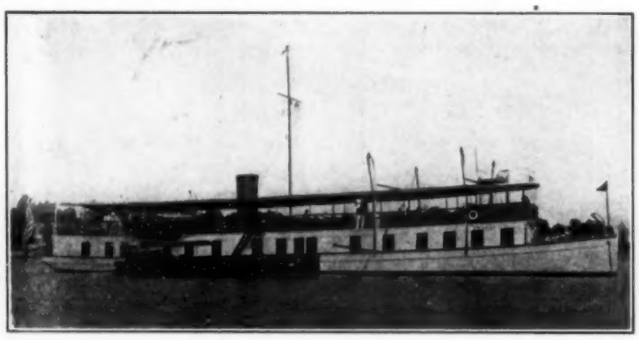
TAMS, LEMOINE & CRANE

Telephone 4510 John

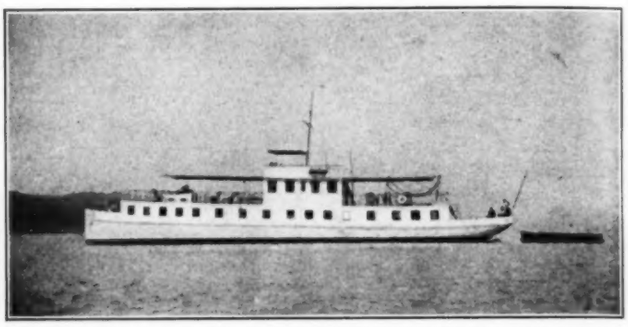
NAVAL ARCHITECTS AND YACHT BROKERS

52 Pine Street New York City

"Offer for charter or sale the following yachts; all are ideally suited for use in Florida. We have specialized in Southern and Florida charters, having most complete lists of suitable boats available"



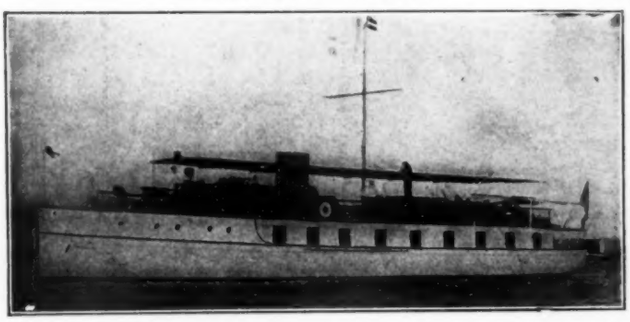
No. 1808.—For Charter for Chesapeake and Florida.—Twin-screw modern houseboat. Electric ice machine and light. Heating plant. Two 75 h. p. Standard motors. 123 ft. x 17 ft. 10 in. x 3 ft.



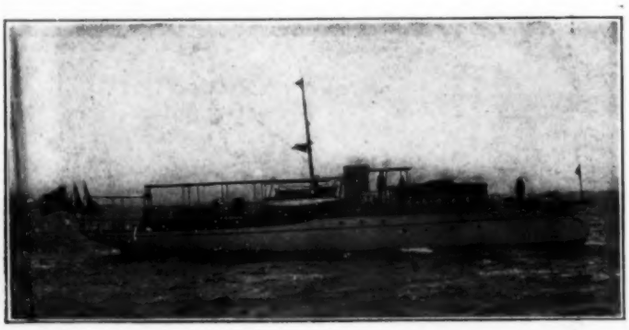
No. 1864.—110 ft. seagoing house yacht; speed 12 miles an hour; exceptional accommodations. Sale or charter.
Please mention MOTOR BOATING

No. 1805.—For Sale or Charter—Desirable houseboat, now in commission Florida waters; 125 ft. o. a., 119 ft. w. l., 23 ft. 4 in. beam, 3 ft. 6 in. draft. Steel, hull sheathed with wood; two 60 H. P. Craig motors; speed 7½ knots; 700 gallons of gasoline. Complete independent electric light plant, electric heaters and fans. Carries 4,600 gallons water. Has 6 boats, including 2 launches, cutter, dinghy and 2 fishing boats; 8 staterooms, all having brass beds; main saloon, dining saloon, observatory, 4 bathrooms, 3 w.c.s, large galley, pantry, storeroom, 7-ton ice box, maid and valet's room and 5 officers' rooms. In absolutely A1 condition, $20,000 having been spent on her in overhauling last year. Ideal boat for southern as well as northern waters. Full particulars, plans, etc., from Tams, Lemoine & Crane, 52 Pine St., New York

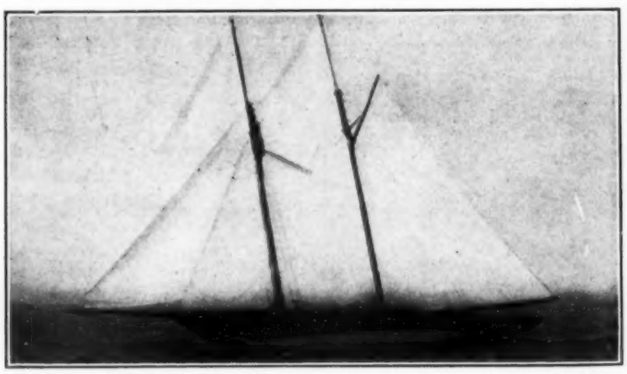
Please mention MOTOR BOATING



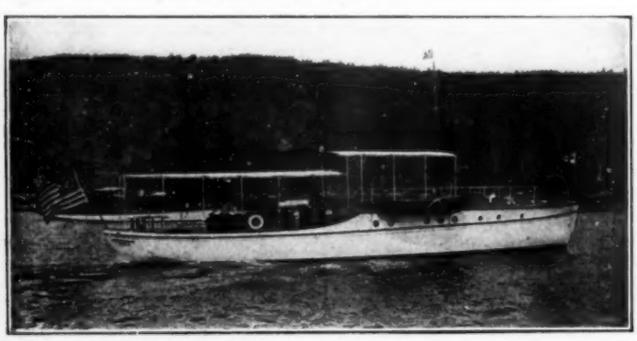
No. 1865.—Combination cruiser and houseboat, 90 ft. x 17 ft. x 3 ft. 4 in.; twin-screw; very able and finely appointed.



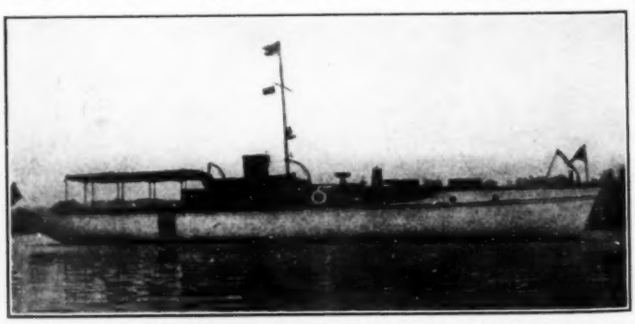
No. 8452.—Sale or Charter.—Twin-screw, 90 x 15 x 4 ft.; 12 knots; two 6-cylinder Sterling motors; excellent accommodations; large deck space.
Please mention MOTOR BOATING



No. 1045.—For Sale.—Attractive auxiliary schooner. 97 ft. x 70 ft. x 19 ft. 6 in. x 8 ft. 6 in. draft. Designed by us and built by Lawley. 75 h.p. motor, speed 7 miles. 3 large rooms, 2 baths, good size saloon, etc. Excellent condition throughout.



No. 7488.—For Sale.—65-ft. modern cruiser. Twin screw. Good quarters, including bath; ideal for Southern and Northern cruising; price attractive.
Please mention MOTOR BOATING



No. 7893.—For Sale.—Price attractive or will take smaller high speed cruiser part payment—62 x 10.2. Built Electric Launch Co., 1910; new 90 h.p. Sterling motor, 1913; speed, 15 knots; double stateroom, saloon, large cockpit, complete electric light plant.

NAVAL ARCHITECTS
ENGINEERS
YACHT BROKERS

GIELOW & ORR

52 Broadway, New York

Telephone, 4673 Broad
Cable Address:
Crogie, New York
A. B. C. Code

Over twenty years' experience, and a thorough knowledge of all mechanical details, enables us to obtain the best possible results, by assigning to each feature its proper relative importance. Four hundred and more yachts of all types, and other vessels, have been built from our plans, for service in this country and other parts of the world. Our yachts are particularly noted for:

The substantial character and perfection of their construction.
Seaworthiness and handsome model.
Correct lines of underbody, giving maximum speed for the power, and resulting fuel economy.
Moderate first cost by reason of correct structural details.
Low cost of up-keep, as all parts requiring attention are easily accessible.

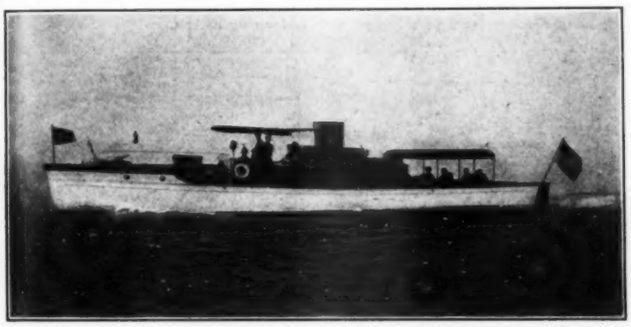
The fact that some of our customers have built two, three and four yachts from our plans, usually successively larger, shows the satisfactory nature of our work.

All of the yachts illustrated below have been built, or are under construction, from our plans and specifications. They show a few types; others of various sizes may be of more interest. If so we shall be pleased to take up the matter with you.

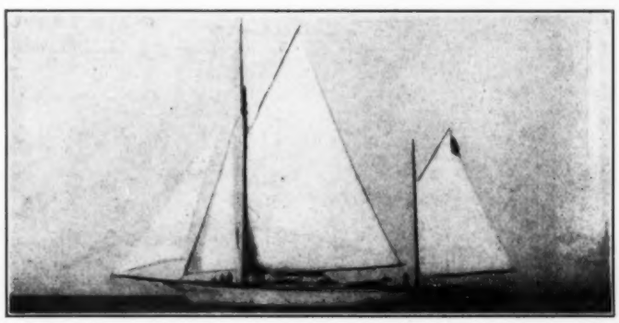
PLANS, SPECIFICATIONS AND ESTIMATES FURNISHED ON APPLICATION.

No. 1816.—Sale, Charter.—Twin screw steel houseboat, 125 x 22 x 4 feet 3 inches draft. One of the finest and most comfortable houseboats in the fleet. Now in Florida waters.

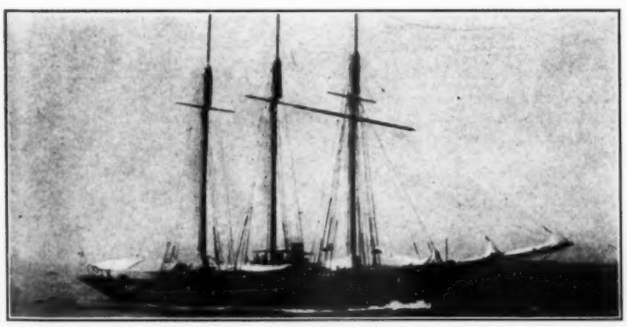
No. 4397.—Sale.—Handsome midship deck cruiser. Lawley design and construction. 6 cylinder 90 H. P. motor. Speed 15 miles and one-man control. A-1 condition throughout. Reasonable.



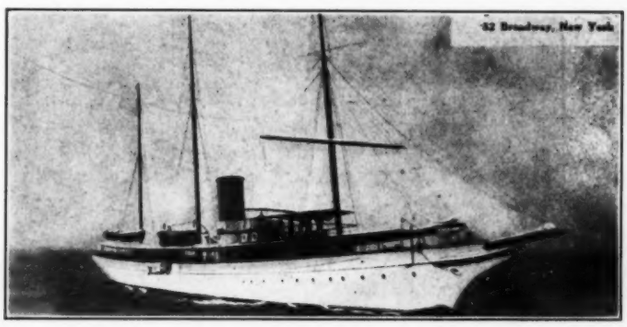
No. 3182.—60 foot twin screw express motor yacht, equipped with two 8-cylinder Sterling motors with self starters. Speed 22½ miles. Perfect order throughout. Reasonable.



No. 3990.—Sale.—Auxiliary yawl, Lawley design and construction. Built 1910. 84 x 60 x 19 x 5 feet 10 inches draft. Fine accommodations. Teak decks and joiner work. 50 H. P. Sterling engine. High class throughout.



No. 3488.—Sale.—Three masted 198 foot steel auxiliary schooner, recent design and construction. Triple expansion engine, "Scotch" boiler. Excellent accommodations. Every convenience for off-shore cruising. Will be sold at reasonable figure to close estate.



No. 2330.—Sale.—227 foot twin screw steel steam yacht. In excellent condition throughout. Probably the fastest boat of its kind in the fleet. Roomy quarters for owner and guests. 2 fine deck houses, large owner's bridge. Will be sold at reasonable figure.

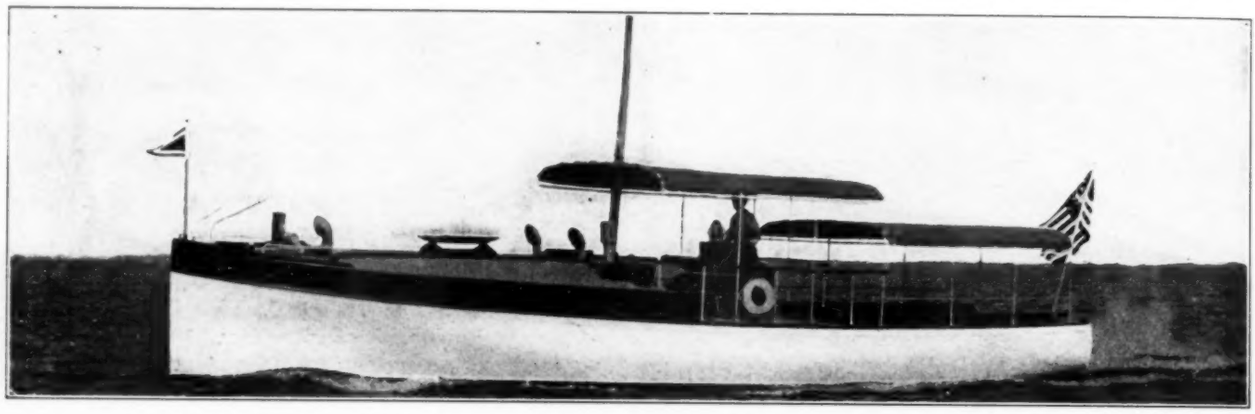
No. 2562.—Sale.—Handsome 55 foot bridge deck cruiser. Built 1909. New 6-cylinder Standard motor installed 1913. Attractive up-to-date boat. A-1 condition throughout.

No. 3910.—Sale.—Twin screw motor yacht, 90 x 15 x 4 feet. Launched August, 1912. Has two 6 cylinder Sterling motors. Speed 12 knots. Fine cruising accommodations. Dining saloon in deck house. Large deck space.

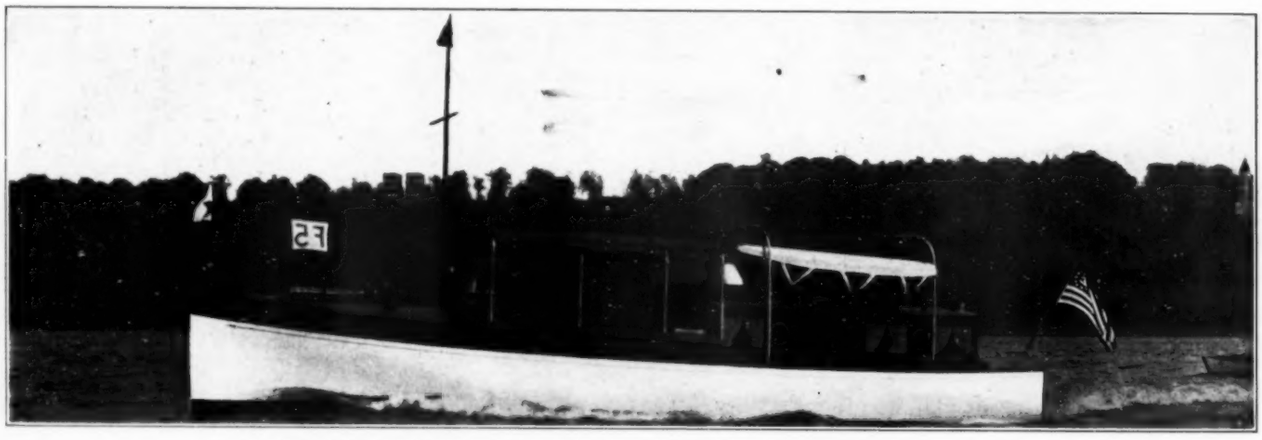
Please mention MOTOR BOATING.

LUDERS MARINE CONSTRUCTION COMPANY

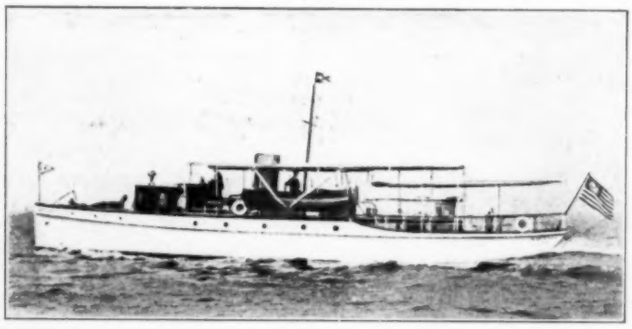
Designers, Builders and Brokers
Stamford, Conn



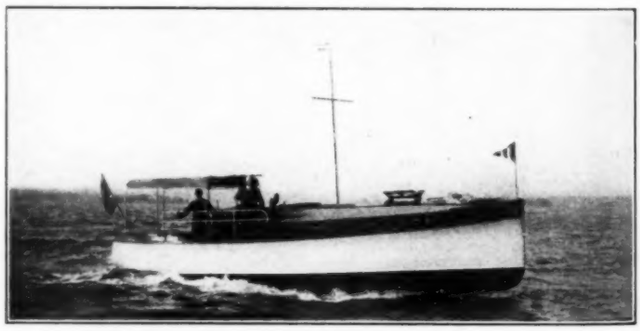
514.—Fine Cruiser and Day Boat; 46 ft. x 10 ft. 3 in. x 4 ft.; Heavy duty Sterling; 12 miles; bridge deck and roomy cockpit.



541.—Fast Cruiser; 40 ft. x 9 ft. x 3 ft.; 60 H. P.; won several long distance races; complete equipment.

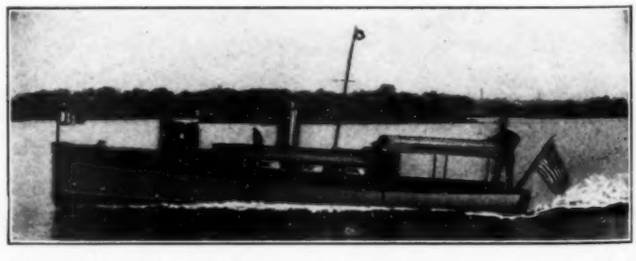


532.—71 ft. x 12 ft. 4 in. x 3 ft. 6 in.; twin-screw; independent electric light plant; best of size on the market.



B-501.—36 ft. x 9 ft. x 3 ft. Craig motor. Wonderful seaboat. Ample sleeping facilities for four people.

B-502—Fast Runabout; very little used; 110 H. P.; 45 ft. x 6 ft. 2 in x 3 ft. draft; shelter cabin with W. C. and W. B.



B-505.—Teak finished. 36½ ft. x 7 ft. x 30 in. 6-cyl. Loew-Victor. 18 miles. Ideal ferry and dispatcher type.

Telephone:—
2800 Tremont

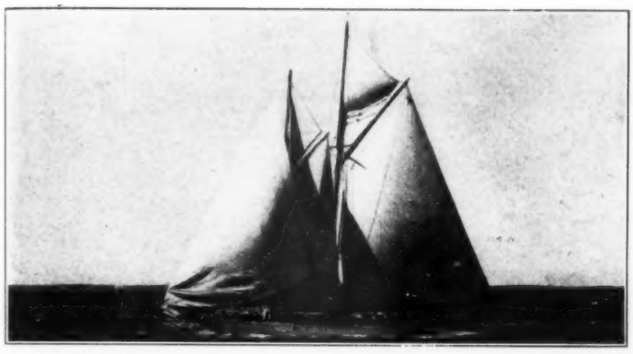
GAS ENGINE & POWER COMPANY
— AND —
CHARLES L. SEABURY & COMPANY
CONSOLIDATED

Cable:—
Excellence

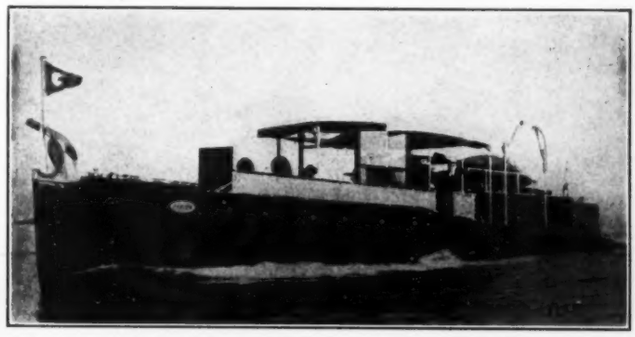
Morris Heights **New York City**

Designers and Builders of Yachts, Launches and Marine Machinery.

Our extended experience assures purchases of used boats through our Brokerage Department, the best and thorough information possible to obtain. We are prepared to submit to interested purchasers information regarding the highest-class yachts and launches, now available. We offer you the advantage of thoroughly competent and experienced salesmen, who are experienced both with steam and gas engines and all styles of boats.



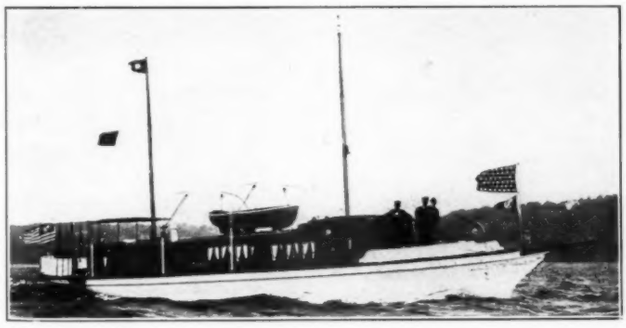
No. 104-N.—118 ft. x 22 ft. 2 in. x 13 ft.; finest cruising auxiliary keel schooner yacht afloat; steel hull, Seabury construction; 100 H. P. Standard engine installed new, 1910; hot-water heating system; new Ratsey sails.



No. 123-M.—High speed cruiser. 66 ft. x 10 ft. Built 1911. Speedway motors—two 6-cylinder, 8 x 8 in., 200 H. P. each. Speed 26 miles per hour.

No. 124-M.—55 ft. x 10 ft. 6 in. x 3 ft. Built 1911. Six-cylinder, 6 x 6 in. "Speedway" motor. Speed 12 miles per hour. At present laid up in Florida.

No. 171-M.—90 ft. x 16 ft. x 4 ft. 6 in. Twin-screw gasolene yacht. Commodious accommodations. Two 6-cylinder, 8½ by 10 in., 160 H. P. "Speedway" motors; air starting and reversing. Speed 16 miles per hour.



No. 121-M.—76 ft. x 12 ft. 3 in. x 3 ft. 6 in. Built 1905. Motors—2 6-cylinder, 6 x 6 in., 50-60 H. P. "Speedways," installed 1910. Speed 13 to 14 miles per hour.

No. 142-M.—72 ft. x 11 ft. x 3 ft.; semi-speed cruiser; six cylinder 60 H. P. Speedway motor, installed 1911; fine accommodations.

No. 203-M.—61 ft. x 13 ft. 6 in. by 3 ft. 6 in.; built 1909; motor, 6 cylinder, 1913 model; excellent accommodations.

No. 122-L.—High-speed runabout. 39 ft. 9 in. x 5 ft. 4 in. Built 1909. "Speedway" special, 125 H. P. Speed 29-30 miles per hour.

HENRY H. JENNINGS, 20 years
HERMAN JAGLE, 14 years } with the late MANNING'S YACHT AGENCY

Jennings Yacht Brokerage Company

AMERICAN AND FOREIGN YACHTS

Merchant Vessels for Sale and Charter

HAMBURG-AMERICAN BUILDING

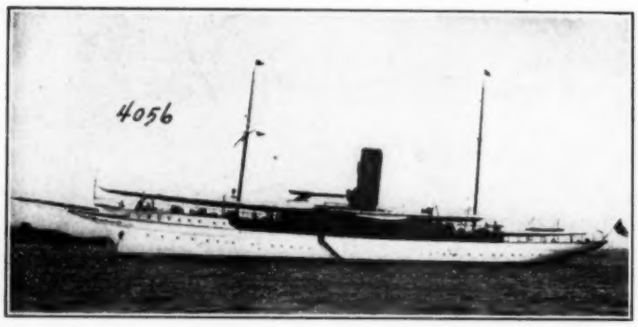
Telephone Rector 8545

Cable Address, Yachtbroco, Newyork

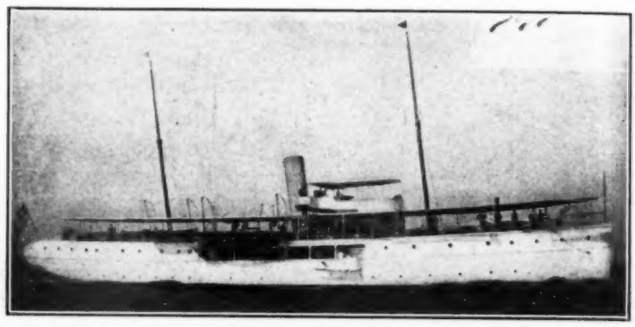
45 Broadway, New York City

Surveying
Marine Insurance

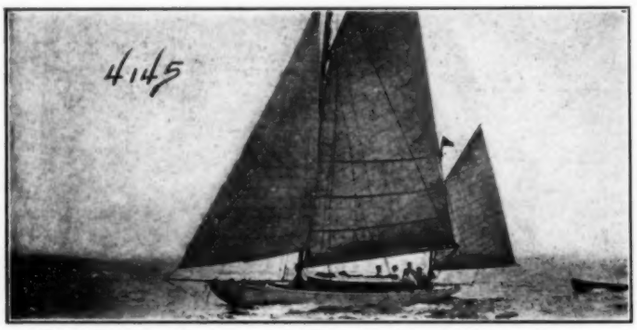
Our list comprises all the available yachts for sale and charter. Below are a few of our offerings. If none of these appeal to you write us your requirements.



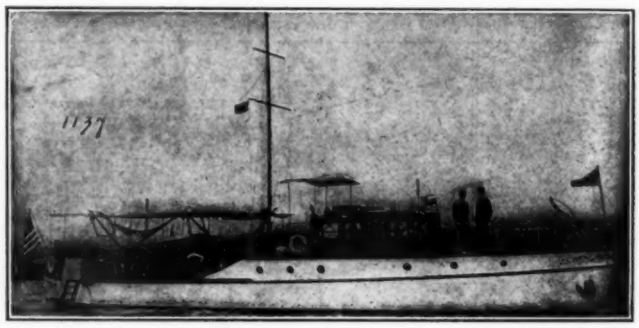
No. 4056.—240-ft. ocean cruiser; one of the handsomest vessels afloat. Splendid accommodation.



No. 3835.—175-ft. Ocean-going steam yacht. Nine large staterooms; speed 16 miles.

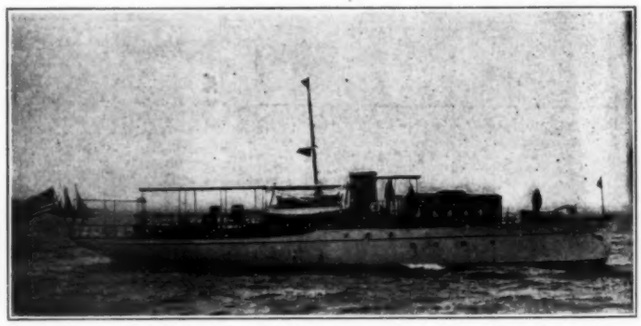


No. 4145.—40-ft. auxiliary yawl; sleeps four. Bargain for quick sale.



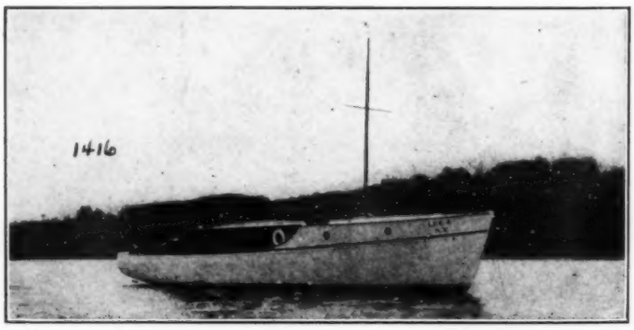
No. 1137.—62-ft. twin-screw cruiser. Three staterooms, saloon and pilot house; three toilets; electric lights. Speed, 19-12 miles. Suitable for Florida waters. Low price.

No. 1400.—45-ft. cruiser; double stateroom, saloon, bath, electric lights. Speed 10 miles. Price reasonable.



No. 1315.—Twin-screw motor yacht, 90 ft. Large dining saloon; three staterooms, bath. Speed 14 knots.

No. 4141.—95-ft. auxiliary keel yawl; three staterooms, large saloon; two baths; Standard motor; electric lights, etc.



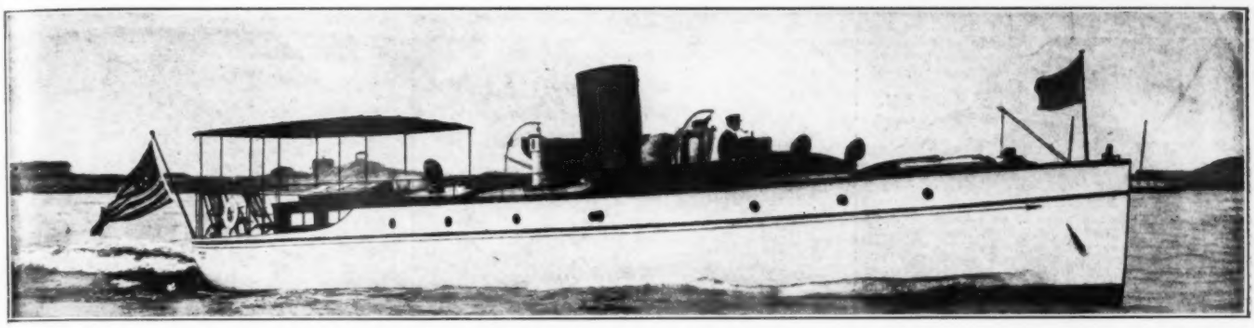
1416.—42-ft. cruiser. Sleeps five. Standard motor. Electric light.

THE MOTOR BOATING MARKET PLACE

The rate for "For Sale" and "Want" advertisements is 3 cents per word. If an illustration is used the charge is as follows, which includes the making of the cut:
Cut one inch deep, one column wide..... $2
Cut 1½ inches deep, 1½ column wide..... $3
Cut three inches deep, three columns wide.....$10

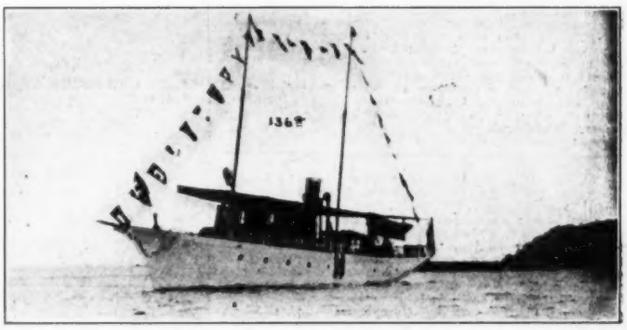
Opportunities for the Motor Boatman

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention MoToR BoatinG.

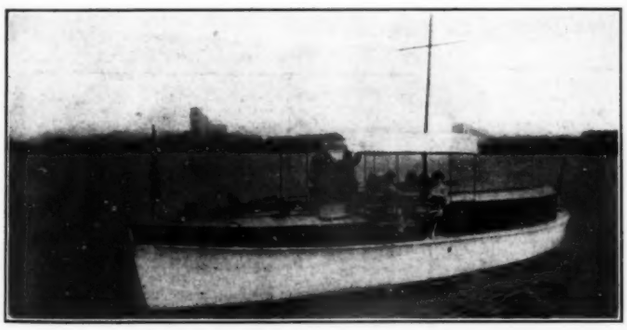


No. 872.—Fast cruiser, 60 ft. x 12 ft. x 3 ft. 6 in.; best of her type; large double state room, bathroom, saloon, separate galley; 100 H. P. Sterling engine; 15 miles; all teak finish on deck; white metal finish. Apply John G. Alden, 131 State St., Boston, Mass.

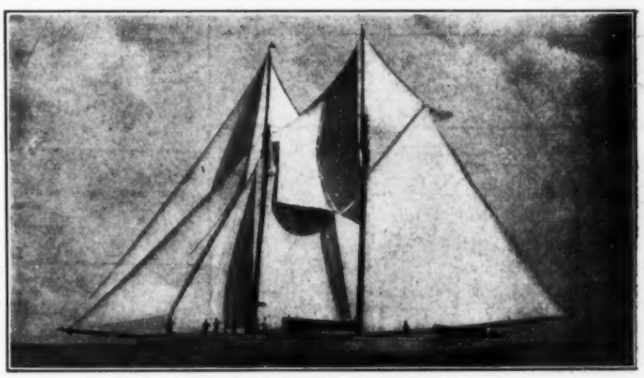
No. 2234.—For Sale.—35 ft. Elco-Express. Speed up to 23½ miles; 60 H. P. 6 cyl. A. & B. motor.; mahogany hull. In excellent condition, having had best of care. Equipment includes auto-top, windshield, leather cushions, lights, etc. Very desirable outfit. Bargain for quick disposal. Apply to Cox & Stevens, 15 William St., New York. Telephone Broad 1375.



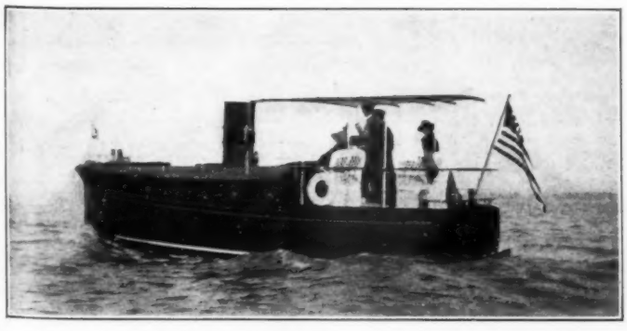
No. 2387.—For Sale or Charter.—Flush deck Herreshoff steam yacht; 85 x 13.6 x 4.6 ft. Located on Lake Ontario. Speed 12 miles. Owner's quarters forward include deck dining saloon, two double and one single stateroom, toilet room, etc. In first-class condition; considerable money spent on permanent improvements during past few years. Price low. Apply Cox & Stevens, 15 William St., New York.



FOR SALE.—Modern bridge deck cruiser, 42 x 10; speed 9¾ miles; 30 H. P. Ralaco; electric lighted; stateroom, saloon, galley, etc., mahogany finish; 1½ years old; complete; in good condition; cost $4,850, offered now at $2,800. For further particulars address H. Rayman, 126 Yale Drive, Toledo, O. Residence phone, Main 5419.



No. 1035.—Sale. Reasonable. Handsome steel auxiliary schooner yacht, flush deck, keel and centreboard under floor (latter never used); Cary Smith design; 110 ft. o. a., 78 ft. w. l., 21 ft. 6 in. beam, 11 ft. 9 in. draft. Standard engine, 75 H. P. Independent electric light plant; two double and one single stateroom; one bath and three toilets aft; saloon 14 ft. long, full width of vessel; sleep ten in owner's party. An exceptionally desirable yacht, in fine condition, with all up-to-date features. There is probably no yacht in the fleet of this kind to equal it. Subject to critical examination. Only offered for sale as owner has large steam yacht and cannot use the schooner. Gielow & Orr, 52 Broadway, New York.



For Sale — "Cybele," fine sea boat, suitable for Southern waters; 40 ft. o. a., 10 ft. 3 in. beam, 2 ft. 10 in. draft; Bowes & Mower design; built by South Jersey Yacht Bldg. Co.; launched September, 1912; 25-40 4-cylinder Sterling engine; speed 10 miles; has main cabin aft with three berths; engine room and galley amidships with berth for man; double stateroom and toilet room forward also toilet room aft; equipment complete and first class. Apply to Bowes & Mower, 5th and Chestnut Sts., Philadelphia, Pa.

$12 covers cost repairing cylinders scored by loose wrist pin. Bore not enlarged—no new pistons required. Broken cylinders and crankcases expertly welded. Work fully guaranteed. Prompt delivery assured. References and complete information cheerfully supplied. WATERBURY WELDING CO., Waterbury, Conn.

TWENTIETH Century motor for sale; 50-65 H. P., 4-cylinder, full equipment, used three months, price $1,650. More power required, reason for selling. Whittelsey & Whittelsey, 11 Broadway, New York City. 'Phone Rector 4718.

A BARGAIN—6-cylinder Speedway engine, 50-60-h.p., all latest improvements, Bosch magneto, Kingston carbureter, copper tank, bronze shaft. Room 803, 74 Broadway, New York City.

CYLINDERS REBORED—Pistons and rings fitted, new cranks, connecting rods, cases, transmissions, any part for automobile or motor boat motor reproduced like original. The shop of quality. McCadden Machine Works, Minneapolis, Minn.

THE MOTOR BOATING MARKET PLACE

Opportunities for the Motor Boatman

The rate for "For Sale" and "Want" advertisements is 3 cents per word. If an illustration is used the charge is as follows, which includes the making of the cut:
Cut one inch deep, one column wide..... $2
Cut 1¼ inches deep, 1½ column wide..... $3
Cut three inches deep, three columns wide.....$10

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention MoToR BoatinG.

17 ft. stepless Hydroplane, 25 to 27 mile speed; 25 H.P. three cylinder Pierce Budd engine, Bosch magneto; hull best oak and cypress construction, mahogany decks and finish; self aligning bronze strut and bearings; brass screw fastened throughout; used only half dozen times; price $700 cash. Can be seen at Evanston Yacht Club Chicago. Address Stewart, 16 Balmoral Place, Winnipeg, Canada.

FOR SALE.—Champion speed boat "Haida Papoose II," 20-foot Smith-Ryan hydroplane; 150 h. p.; eight-cylinder Sterling; built summer 1913. Winner of Free-for-all, Kansas City; Perry Centennial Free-for-all, Buffalo; Blackton trophy, Buffalo; Perry Centennial Free-for-all, Louisville. Second in Chamber of Commerce cup, Buffalo; Speed trial cup, Buffalo; Thomas trophy, Buffalo. First or second in every race started. Beaten every boat in races to which she raced second in speed trials. Has made better than fifty miles an hour in official speed trials. Inquire of Max C. Fleischmann, No. 419 Plum St., Cincinnati, Ohio, or Smith-Ryan Boat & Engine Company, Algonac, Michigan.

PATENT FOR SALE.—Unsinkable lifeboat, broadly covered by United States Patent, Number 1,010,309, granted Nov. 28, 1911. A thoroughly practicable design which gives not only a boat of infallible buoyancy, but also a strong construction, capable of resisting heavy blows and shocks that would destroy any other type of lifeboat now built. Meets every requirement of the constantly increasing demand for a boat that is absolutely safe under every condition. This patent can be made the foundation of a very successful business if properly promoted. Write to-day for full information. Joseph Lupiano, 1 South Main St., Asbury Park, N. J.

FOR IMMEDIATE SALE.—One 6-cylinder, 12 x 14, Single Acting, 300 H. P. Standard engine, recently overhauled, in excellent condition. Shaft, propeller, starting batteries, muffler, exhaust piping, etc. Asking price $2,300.00. Are open to an offer. Albert E. Eldredge Corporation, 50 Church Street, New York City.

FOR SALE.—21-ft. launch, 6 h. p. 2-cyl. Gray motor; speed 12 miles. Automobile top and cushions. Write for price and description. Milton J. Gold, 722 8th St., Brookings, S. D.

No. 251.—Fast cruiser, 38 ft. x 7 ft. x 2 ft. 6 in. Designed and built by Lawley, 1912. Exhibited New York Motor Boat Show, 1913. Sleeps 4, 2 in forward cabin, 2 in after cabin; roomy cockpit; engine under bridge deck; toilet room forward; 60-70 H. P. 6-cylinder Lamb engine; speed 17 miles. Handsomely finished throughout. In perfect condition. Apply John G. Alden, 131 State St., Boston, Mass.

No. 313.—39 ft. x 9½ ft. x 3 ft. cruiser; 2 double stateroms, saloon, large toilet room; 10 knots; 45 H. P. Sterling engine. Unusually able; little used. Apply John G. Alden, 131 State St., Boston, Mass.

FOR SALE—Full cabin, 30 ft. launch, first-class condition. Cheap, getting larger boat. C. Grecht, 1330 S. Sharp St., Baltimore, Md.

THERE is a good customer looking for every article which is in serviceable condition. The question is to find that customer. That is what Motor Boating's Market Place is for. Send us an advertisement of your discarded articles today.

SPEEDWAY RACING ENGINES FOR SALE.

The two "Speedway" 8-cylinder 8" x 8" motors developing 250 h.p. each, from the famous high speed cruiser "Speejacks," winner of the match race at Put-in-Bay, establishing a record as the fastest gasolene cruiser in the world. Engines new this summer, used two months, in perfect condition. Replaced this fall by cruising engines. Will sell at reasonable figure. Refer to A. Y. Gowen, Cleveland, Ohio, for record of their performance. Engines seen at our works. Write to us for full particulars.

GAS ENGINE AND POWER COMPANY

AND

CHARLES L. SEABURY & COMPANY

CONSOLIDATED

MORRIS HEIGHTS, NEW YORK CITY.

LESS THAN COST.—We have on hand a supply of boat fittings and marine hardware of all kinds, including shafting, propellers, cushions, spark coils, etc., which we will not use in the construction of our 1914 models. Stock listed is new, only a small part being slightly shop worn. Complete list of this equipment, with prices for same, will be furnished upon application. THE W. H. MULLINS CO., Salem, Ohio, U. S. A.

FOR SALE

NEW raised deck cruiser, designed by Whitaker, 36 x 9; complete equipped; Goblet & Dolan closet, 3-burner stove, sink, 100-gal. gasoline tank, anchor and line; sailing light; best corduroy cushions; sleep 4; finish, walnut; 8 ft. dinghey; complete in every way; all new 1913; launched June 14, 1913; motor, double cylinder 24 H. P. 4-cycle; speed 10 miles; building larger boat; no use for her; can be seen by appointment; hull is of 3-16 steel, rib of 1½ x 1½ x ¼ angle steel. L. BOSTWICK, Conneaut, Ohio.

FOR SALE—Rutenber motors, brand new, 4-cylinder, model 27, 3¾ x 5¼, 25-30 H. P., complete with fan, oiling system, flywheel, exhaust and water manifolds, spark plugs, water pump, and also magneto attached. Motor en bloc. All valves enclosed. Price, complete, $225.00. AUTOMOBILE APPLIANCE CO., 1714 Michigan Ave., Chicago, Illinois.

A LARGE, established marine house is looking for a sales manager who will become an active member of firm. Investment from $5,000 to $10,000 required. Big opportunity to right party. Box No. 221, care of Motor Boating.

FOR SALE: Houseboat, 18 x 70 ft.; canoe club house or for seashore business or studio. 939 Eighth Avenue, Room 302, New York City.

BEAUTIFUL light-draught yacht for sale, 85 x 15, draught 35 in.; copper fastened; copper sheathed; 50 h.p. Globe; speed 10 to 12. Cost over $40,000. Best offer over $8,000. McCOY BROS., Daytona, Fla.

WANTED IMMEDIATELY—Experienced boat builder, competent to take charge of large stock boat building proposition. Address A. D. T., care of Motor Boating.

IDEA FOR SALE—Device to prevent back firing in any type of internal combustion engine. For full information, address E. B., care MoToR BoatinG.

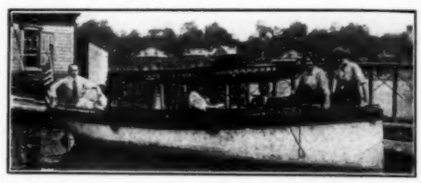
TWO CYLINDER, four cycle, 20-22 horse Clay heavy duty, shop worn, new, guaranteed. Schebler carburetor, lubricators, timer pump, spark plugs, $275.00. The Clay Engine Co., Cleveland, Ohio.

PRICES cut in two. Special sale sample launch hulls from 16 ft. to 36 ft., family and speed type, also several second hand bargains of our own make we have taken in trade. Send for list. Everett Hunter Boat Co., McHenry, Ill., Dept. B.

WANTED—Back numbers of Motor Boating. Address S. T. ATKINS, 108 South La Salle St., Chicago.

WILL take large motor boat or steam yacht in part payment for Chicago income property. CHICAGO YACHT BROKERAGE COMPANY, 1501 Railway Exchange, Chicago, Ill.

Ono II For Sale.—Most seaworthy boat of size on Great Lakes. 46 feet. Just the boat for four or five lads. Carries sail in case of emergency. Address R. H., 2326 Dime Bank Building, Detroit, Mich.



LAUNCH, 20 x 6, cedar hull, copper fastened, heavy construction throughout; fully lockered; 4-5 H. P. Detroit engine; can be fully enclosed; condition guaranteed. Can be seen out of water. Must sell at once, $220. Jno. Limprun, 207 Buttonwood St., Philadelphia.

WANT TO PURCHASE—25-50 H. P., 4-cycle, medium or heavy duty, gasoline marine motor with up-to-date fixtures. E. S. EDEN, Santa Barbara, Calif.

WILL exchange automobile in fine condition for first-class cruising motor boat. Send photo and full description. Sheldon, 153-4th Ave., Newark, N. J.

FOR SALE—Two-cylinder, eight horsepower, four-cycle engine. First-class condition. Getting more power. Martin E. Walsh, 1330 S. Sharp St., Baltimore, Md.

FOR SALE—The Willet Engine & Truck Co., Inc., has decided to discontinue the manufacture of marine engines in order to devote all their time and room to trucks. They therefore offer for sale at a very low price, all their patents, patterns, working drawings, jigs, tools, etc., completed engines and such stock as they may have on hand. The Marine Engine has been extensively advertised and is known to be a perfected two-cycle engine for boats. To parties wishing to engage in such a proposition it is an unusual opportunity. Full particulars gladly furnished. Willet Engine & Truck Co., Inc., 6-8 Lock St., Buffalo, N. Y.

UNABLE TO BUILD, will sacrifice for $15.00 building plans and specifications modern 40-foot raised deck cruiser. Room 417, 103 Park Ave., New York.

USE "SNAPPER" ENGINES for your small boat. They are a big little engine built by The Automatic Machine Co., Bridgeport, Conn.

CANADIANS, Second-hand engine bargains. Send for list. Guarantee Motor Company,
73 Bay Street, North, Hamilton, Ont., Canada.

WANTED.—4-cylinder, 4-cycle, 30-40 h.p. marine engine; no shaft or wheel. Describe in detail. H. C. KENNINGTON, So. Casco, Maine.

SELL YOUR OLD BOAT OR MOTOR
By placing an advertisement in
MOTOR BOATING
MARKET PLACE
It costs you only 3c per word

NAVAL ARCHITECTS & YACHT BROKERS

ATKIN-WHEELER COMPANY.
HUNTINGTON, L.I.N.Y.
YACHT BUILDERS, DESIGNERS AND ENGINEERS.

ARTHUR BINNEY
Successor to EDWARD BURGESS
NAVAL ARCHITECT AND YACHT BROKER
Mason Building, 70 Kilby St., Boston, Mass.
Agent for The Standard Marine Motor, The Commercial Acetylene Co. (Safety Storage System.)
TELEPHONES:
Office, 2702, Main. Residence, 3023-3, Brookline
YACHT BROKERAGE DEPARTMENT:
Commission on Sales, 5 per Cent. Commission on Charters, 10 per Cent.

BOWES & MOWER
Naval Architects and Engineers
Yacht and Vessel Brokers
Offices, Lafayette Bldg., Chestnut and Fifth Streets
Bell Phone PHILADELPHIA, PA. Cable Bome

A NEW ENGINE FOR YOUR PRESENT ONE

BRUNS, KIMBALL & COMPANY, INC., 132 Liberty Street, New York City, will make you a most liberal allowance on your present engine in exchange for a new one. Let us know your requirements.
OVER 2,500 YACHTS AND LAUNCHES FOR SALE.

COX & STEVENS
Engineers and Naval Architects
Yacht Brokers
15 WILLIAM STREET, NEW YORK CITY
TELEPHONE 1276 BROAD

JAMES CRAIG
827-841 Garfield Ave. Jersey City, N. J.
Tel. 2227 Bergen.
DESIGNER AND CONSTRUCTOR OF MARINE GASOLINE ENGINES AND SPECIAL MECHANISMS, SEVEN TO THREE HUNDRED HORSEPOWER

JOE FELLOWS
Yacht & Launch Co., Inc.
ARCHITECTS and ENGINEERS
4 Railways 60 to 300 Ton
Sterling Wolverine Eagle Campbell
LOS ANGELES Salesroom
WILMINGTON Main Yard and Office
SAN DIEG

WM. EDGAR JOHN
Naval Architect and Engineer
328 Chestnut St.
Philadelphia, Pa.

LUDERS MARINE CONSTRUCTION COMPANY
Designers and Builders of Motor Boats 10 to 110 feet long.
Designing and Building of all Types of Power Boats a Specialty.
Stamford, Conn.

FREDERIC S. NOCK
NAVAL ARCHITECT AND YACHT BUILDER
MARINE RAILWAYS, STORAGE, REPAIRS
EAST GREENWICH RHODE ISLAND

6,300 Miles in a Motor Boat.

(*Continued from page 7*)

ness softened muscles grew hard and the skin tanned as it should be.

Being inexperienced in boat affairs, I made some of the usual mistakes, in equipment. The worst of these was in the choice of engine. I knew nothing of gas engines then and had to depend on catalogues. I didn't even know the difference between the two and four-cycle type, so I handed over three hundred and fifty of my hard-earned dollars for a light-weight 15 h.p. engine. So do we pay for experience. After three months of the kind of trouble that makes such good reading in the motor boating magazines, I had learned my lesson. A night spent at anchor in 200 feet of water, eight miles out in Lake Michigan because of a broken down engine, had helped to teach it. I will never forget that night. The long hourse of waiting for help that didn't come, the fearful noises of the rolling boat (a heavy ground swell was running from the northeast), the washing of the bilge water, the straining of the anchor line, the creaking of the timbers, the sudden fright when, with a great clatter, the riding light broke from its fastenings and rolled overboard, all these are fresh and vivid memories. I worked most of the night on the refractory engine, then gave up till daylight, when I finally coaxed and wheedled it into running again. A few hours after we were safe in Chicago harbor; one of the worst gales of the season was in full swing. I gave away that engine as soon as I could for half its cost and replaced it with a heavy duty one of the same power, which has carried me over eleven thousand miles, with only one breakdown that cost ten cents to repair, and with no overhauling. It was as reliable as a steam engine.

If I can give one piece of advice to an inexperienced motor boat owner that is of supreme importance, it would be to get a heavy duty motor for cruising or for hard work, the heavier the better.

The following spring found plans for the big cruise complete. The boat was prepared as best I knew after the previous summer's experience, and a year of study of things nautical. Most important were the reserve parts. Two independent gasoline tanks were connected separately to the engine, one holding seventy gallons placed under the forward deck, the other holding sixty gallons under the cockpit floor. There were threedifferent electric systems, cockpit control of engine and reverse, electric and oil lamps in binnacle and engine room, two anchor lines coiled on deck ready for instant use, a small sail for emergencies, two fresh water tanks, one holding sixty gallons for a reserve supply when at sea. To the efficiency and readiness of several of these reserves and to the reliability of the engine, we, without question, owe the fact that we are today among the living.

I have been asked many questions about the trip by people who were deeply interested in it. Many of them those who said they had always wanted to take it.

Did we find river pirates on the Mississippi, did we run aground often or need a pilot? Were we troubled by tramps or ruffians while tied up along the water fronts of the various cities? Did we catch any fish? Was there any hunting? Were we caught in any storms? Did we ever get lost? Did we stay near shore on the Gulf and Atlantic? Did we stop at points of interest—historical and otherwise? How did we find our way through unfamiliar waters and along unknown coasts? Did we find many other cruising boats?

To answer these questions briefly is to give a fair suggestion of the possibilities of this wonderful and almost unknown journey.

No. We found no river pirates on the Mississippi. On the contrary, the river people everywhere were a friendly, good-natured, easy-going lot who were interested in us as we were in them and who acknowledged the tie of the boat love that binds men together wherever they float on the moving waters. In the cities it was the same way. Along the docks, in the shanties and scows of the fishermen, on the big boats, everywhere there was evident the feeling of comradeship and good will and readiness to give help. Help anybody in need for you yourself may be the next to need it. That was the unwritten motto.

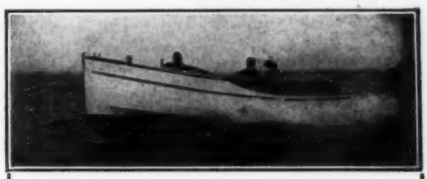
Were we caught in any storms? Ah! Again the flood gates open. There were storms on the Mississippi, storms that whipped that placid sheet into the likeness of Lake Michigan in a northeaster, capsizing boats, drowning men like rats, blowing down negro cabins and uprooting fifty-year-old trees. I can see by the continuous glare of the lightning a tree bent double just beyond the wall of the dike. I can hear pots and pans crashing to the floor of the galley as the boat rolls viciously from side to side.

The program of events on the Gulf in June and July includes one squall every afternoon at 2 p.m. Average duration is fifteen minutes. Sometimes one arrives late and then sometimes one forgets the time limit. That is what happened on July 17th. The 2 p.m. squall played two encores and then forgot to quit for fourteen hours. A good many days later, when we reached civilization again, we learned that in that time it had come near destroying Galveston a second time. I could believe that it did come near it. The most surprising part of the experience was to find the boat still under me at the end of that fourteen hours. Some days before I had seen the battered hulk of a four-masted ship that had been broken in two as if made of cardboard and tossed on the beach. Yet here was my eggshell craft still afloat. And the only signs of the conflict were a gas tank wrenched from its fastenings and clothes and bedding damp with salt water that had driven through unknown cracks and crevices.

There was a storm on Mobile Bay, the hurricane at Miami, the blow on Lake Erie, and the sudden leak, but all these were as toy pistols to cannon compared to the storm of July 17th.

We did not get lost because we plotted our course from the government coast charts. In the small unbuoyed channels, not shown on the general charts, we felt our way cautiously with lead line, avoided the bad places as best we could and took the thrills of the close calls as part of the game. We ran over thirteen hundred miles on the Gulf and Atlantic at a distance of anywhere from one to fifteen miles off short and in that distance passed just one lonely cruising motor boat outside in the open. We always planned to make harbors before dark and usually did so, although there were times when safe harbors were one hundred and fifteen miles apart.

NAVAL ARCHITECTS & YACHT BROKERS



"Piute III." Type "Hand-V-Bottom" 24-Footer for Rough Water Use. Speed 20 miles. H. P. 30.

I SUPPLY complete Hand-V-Bottom boats of the highest grade. They are built, engined and tested under my personal supervision.

Write for Quotations

Amateurs have built hundreds of successful Hand-V-Bottoms. One of these is "Old Glory II." You can build one if you work from genuine plans.

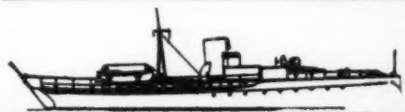
Send stamp for 1914 illustrated catalog showing successful stock designs

WILLIAM H. HAND, JR.
Naval Architect
NEW BEDFORD, MASS. U. S. A.

T. S. POEKEL & CO.
Engineers and Designers
YACHT BUILDERS
Marine Railways Storage Sheds
Tel. Dor. 1690 NEPONSET, MASS.

Profitable Advertising

consists in placing your selling message before the greatest number of possible buyers. MoToR BoatinG has the largest guaranteed circulation in the marine field, reaching boat owners exclusively and of a class who can *afford to buy* what you want to sell.



Tel. Lombard 3329 Cable Add. "Murwat"
J. MURRAY WATTS
Naval Architects and Engineers Yacht and Vessel Brokers
Offices: 827-830 BROWN BROS. BUILDING
838 CHESTNUT STREET PHILADELPHIA

MORRIS M. WHITAKER, N. A.
NYACK-ON-HUDSON, NEW YORK, U. S. A.
Specialist in the Design of Motor Cruisers, Auxiliaries and Commercial Vessels.
Designer of over 400 successful motor craft since 1900.
Sketches and quotations for designs submitted on receipt of your requirements
Will be at the Chicago Motor Boat Show.

WHITTELSEY AND WHITTELSEY
Naval Architects Engineers and Yacht Brokers
11 Broadway
New York, N. Y.

Two Ways to Build a Boat

One way to build a boat is to fix the selling price in advance and then force your factory to keep within it.

The other way is to construct the finest craft that expert workmanship, superior materials and scientific correctness of design will permit.

This second manner of boat construction is

The Milwaukee Way

because boats that we build are constructed first and priced secondly.

That is the reason why Milwaukee boats give more than ordinary satisfaction and continue to be a source of pride to every owner of one.

Catalogue on runabouts and cruisers sent free upon request.

Milwaukee Yacht and Boat Co.

Becher Street
Milwaukee, Wis.

Racing Here and Abroad Compared.

(*Continued from page 12*)

getting started. When Ankle Deep was taken from Minnewaska and shipped to Cowes she was in perfect condition, and before she slid down the ways into the water, Grenon primed her motors. All that was necessary was to turn on both switches and away she shot without a cylinder missing. The Frenchmen in particular were astonished.

Ankle Deep was the only boat that remained in the water during the entire time of the races and not one mechanical change was made in her, not even a spark plug. We took along about $2,000 worth of extra parts and never even unwrapped them. As it turned out, we could have gone abroad with only a monkey-wrench. Owing possibly to the late date at which the races were held there were but few craft in the sight-seeing fleet and several of them anchored directly on the course, but again, let me say that this did not effect Ankle Deep's chances of winning. As the result of the races I am convinced that a much higher powered boat than Ankle Deep and one of nearly 40 feet over all length will be required to lift the cup.

While the French boats were the fastest I have ever seen, you might compare them to frail match-boxes loaded with lead, ricocheting along the water. Imagine what will happen to such craft in other than perfectly smooth water. They could not stand an even moderate sea. We encountered unusually fine weather for the first two races, but on the third day, however, quite an ugly sea was running on the outer leg, and that accounts for the slower time made. It was on the third day that the larger boat showed her advantage, though Ankle Deep might have done better with more power. What I mean is this:

It is speed that one needs, particularly in a following sea, else, in a boat of Ankle Deep's type, she will dive and half drown herself. When the extension planes become submerged and pointed downward, unless the boat is going very fast, she will refuse to lift and is liable to take a big sheer, usually to starboard. In such instances, the sport becomes decidedly thrilling. It's an awful strain to drive a boat over a course with a following sea when you never know whether she is going to dive and never come up, but I believe that if she is sufficiently speedy she will not dive in the average sea. A longer boat has a much better chance to make love to the wave crests, but the larger boat calls for a more than proportional amount of power to drive her.

The Royal Motor Yacht Club and the British Motor Boat Club both entertained me royally and proved themselves to be ardent sportsmen. It is a pity that so many boat lovers have such limited waters for high speed motor boat racing over there.

I drove in a couple of other races at the Burnham meeting with a small boat loaned to me and we had some good sport. There were twelve races in all and every one of them was run on time, something we might well imitate. Anyone who is not ready is out of it. They have no postponement signal, and are ardent enthusiasts.

Commodore Pugh showed himself to be a sportsman of whom all Americans may be proud. While he wanted to win and did his best he was rooting for me as much as for himself. His spirit from first to last was "May the best boat win."

Since I returned to America I have been asked by many what I thought of future possibilities regarding the coveted trophy. If the French will stay away from match-box factories for their hulls they stand a good chance of lifting the trophy. If any American enthusiasts contemplate building a boat to contend for the trophy next year, and a new boat will have to be built as there is not one in existence here now that is able to do it, it will have to be a boat capable of making fifty-five statute miles an hour in any sort of reasonable going.

Such conditions as existed while the American team was trying to be chosen last summer will not encourage those who might try for the honor of contending for the trophy to do so. Some big changes are needed in the situation in this country. It will take more than talk and hollow challenges to bring the British International Motor Boat Challenge Trophy back to this country.

A Diesel Lake Boat.

(*Continued from page 15*)

three-phase type each being direct coupled to one of the Diesel engines. The alternators, when running at their normal speed of 400 r.p.m., each give an output of 500 volts and 270 amps. per phase, which absorbs the full power of the engines. An exciter is direct coupled to each alternator and is capable of giving an exciting current of 30 amps. for ample working, which can be increased up to 50 amps. whilst manoeuvreing.

The current from these two generating sets is led to a 500 b.h.p. induction motor of special construction. The rotor of this motor is of the squirrel-cage type, but the stator is provided with two different and entirely separate windings, one of 30 poles and the other of 40 poles. When these two windings are supplied with current at 20 and 26.6 periods respectively they give the same synchronous speed of 80 r.p.m. The motor will then absorb the power of both engines and drive the propeller, to which it is direct coupled at a speed of 78 r.p.m. This propeller speed corresponds to the fastest speed of the vessel.

In order to obtain a lower speed the connections are altered so that the alternator giving 20 periods supplies the 40 pole winding of the motor; the alternator giving 26.6 periods can be shut down and the 30 pole winding of the motor is also out of use. The synchronous speed of the motor with the propeller is now reduced to 60 r.p.m. One of the engines only is available; but, as the speed of the ship is reduced to about three-quarters of the normal, half of the total horsepower is ample and the great advantage is obtained of being able to entirely shut down that part of the plant which is not required at the low speed. Reversing is carried out by interchanging the connections of the two phases.

The switch gear, by means of which the necessary changes of connection are made, is extremely simple; it consists of two parts—a main switch of the trolley car controller type having five different positions. Full ahead, half ahead, stop, half astern, and full astern; and of a second interlocked switch, the purpose of which is to introduce resistance into the shunt circuit of the exciter.

Safety at Any Cost

This last season has seen an appalling number of accidents on the water—most of them due to carelessness in rowboats and canoes.

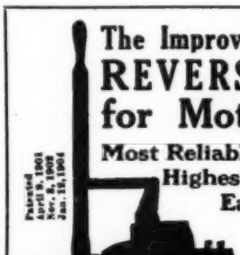
Kenyon Pillows

in these boats would have saved every life. "Safety at any cost" sounds like a ridiculous slogan when you consider the cost of a Kenyon Pillow. It can be used for a comfort maker, too, for it is soft and sturdily made.

On sale by prominent dealers everywhere, or by paid Parcels Post at $1.25 each.

THE R. L. KENYON COMPANY
370 Meadow Street Waukesha, Wis.

The Improved BALL REVERSE GEAR for Motor Boats



Most Reliable
Highest Grade
Easiest to Install

Four Sizes Carried in Stock

Send for Catalog

New York Gear Works
56 Greenpoint Ave., Brooklyn, N.Y.

Sliding Spray Hoods

Frames of brass or best quality ash, complete with all necessary fittings; cloth covering, light, durable, absolutely waterproof; can be raised or lowered in 10 seconds; furls compactly.

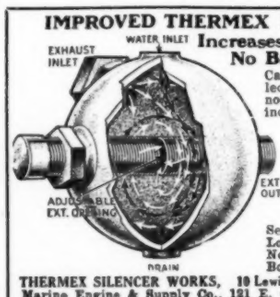
Life Saving Devices

of all kinds; Acme Fibre Cushions, Perfection Pneumatic Mattresses, Folding Canvas Boats, Life Preservers, Swimming Collars, etc.

Our Special Catalogue M, fully describing these and other sporting accessories, should be in your hands. Send for it today.

THE PNEUMATIC MFG. CO.
526 17th Street Brooklyn, N. Y.

IMPROVED THERMEX MUFFLER



Increases Revolutions, No Back Pressure!

Cannot clog, nor collect salt; water cannot flow back to cylinder. No heating, no odor. Used free or under water — adjustable discharge. Lightest; cheapest to install. Free booklet shows why. Send for it today. Look for us at the New York Motor Boat Show.

THERMEX SILENCER WORKS, 19 Lewis Street, East Boston
Marine Engine & Supply Co., 121 E. 6th St., Los Angeles, Calif. Burrard Iron Works, Vancouver, B. C.
Bruce, Stewart & Co., Charlettetown, P. E. I.

The Captain's Story

"I never knew a varnish that would stand soap and water until I tried Valspar.

"I like things clean and bright around me, but I always had trouble with the varnish. Valspar is the only varnish I've ever used that water and weather wouldn't turn white. I can tell you Valspar makes a big difference in a cabin, and a home too, for that matter. For we're usin' it ashore, too—the floors, woodwork and furniture have all got a coat, and the madam says the house never was as bright and as easy to keep clean. Fact is, she told the neighbors, and they think just as much of it as we do. Handy to use, for it dries over night, and you just can't wear it out."

If you do not find Valspar perfectly satisfactory, the dealer will refund the price. Booklet and dealer's name on request.

VALENTINE'S VALSPAR
The Varnish That Won't Turn White

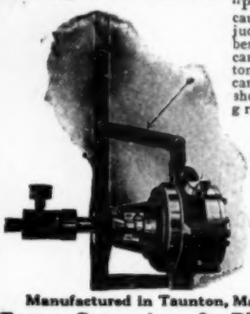
Look for Us at the New York and Chicago Motor Boat Shows

VALENTINE & COMPANY 456 FOURTH AVENUE NEW YORK CITY
NEW YORK CHICAGO BOSTON *Estab. 1832* TORONTO PARIS AMSTERDAM

VALENTINES VARNISHES

PARAGON REVERSE GEAR

We keep telling you about the "PARAGON" because we know that you want the best gear. Consider that over 50 of the best engine manufacturers are using the "PARAGON" because, in their judgment, it is the best gear that they can give their customers. (And we can prove it by showing you photographs of the "PARAGON" attached to their engines.)



What stronger evidence can you want that it is the gear you ought to have?

Manufactured in Taunton, Mass., by the

Evans Stamping & Plating Co.

BRANCHES—American Motors Equipment Co., 6973 Washington St., North, Boston Mass.; Bowler-Holmes & Hecker Co., 141 Liberty St., N. Y. City; J. J. Farley, Machinery Dept., Bourse, Philadelphia, Pa.; Unger & Mahon, 119 East York St., Baltimore, Md.; National Boat & Engine Co. of Fla., Ft. of Main St., Jacksonville, Fla.; James M. Wait & Co., 1205 Michigan Ave., Chicago, Ill.; Missouri Engine Co., 2810 N. Eleventh St., St. Louis, Mo.; Marine Engine & Supply Co., 100 E. Seventh St., Los Angeles, Cal.; J. C. Shadegg Engine Co., 315 Third St., So., Minneapolis, Minn.; S. V. B. Miller, 72 Marion St., Seattle, Wash.

Handled in Canada by the Canadian Fairbanks-Morse Co., Ltd. Australian Representatives:—White, Frazer & Best, Sydney.

GALUSHA

GAS PRODUCERS

Use gas made from coal, coke or charcoal in your engine. It is as cheap as gasoline at two cents a gallon. ¼ to 1/12 the expense of power from steam or oil. We build sizes from 18 H. P. up.

A. L. GALUSHA & CO.

811 Atlantic Ave., Boston, Mass.

BURNS WITHOUT ODOR

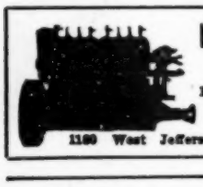
Barthel Juwel Yacht Stove

Generates gas from Kerosene, giving hot, blue flame. Absolutely safe, even if overturned while lit. Has Galvanized Frame with Brass Rail around Top and Pan Beneath for Yacht and Boat use. Several styles.

Write for catalogue and prices.

Globe Gas Light Company

25-27 Union St. Boston, Mass



LISKS MARINE ENGINES

4 CYCLE ONLY

1 to 6 Cylinders 5 to 40 H.P.

Manufactured by

GEO. A. LISK

1160 West Jefferson Avenue, Detroit, Mich.

McCLELLAN TOPS AND SPRAY HOODS

The Kind of Quality That Is Economy.

McClellan Auto Boat Tops are operated without detaching any part of framework, giving true one-man control. Our Simplicity Spray Hoods are used in all U. S. Life Saving Boats. Quality, materials, workmanship, design the finest. Write today for catalog.

CHAS. P. McCLELLAN, FALL RIVER, MASS.

The Polaris Compass

Will Hold You on the Course

Standard Quality and especially adapted for power boats.

Ask about our "*Perfect*" Compass Light. No eye strain. Costs less than a binnacle, and more efficient.

Address Box H.

MARINE COMPASS CO.

Bryantville, Mass.

New Possibilities in Propulsion.

(*Continued from page 4*)

ing as an automatic stablizing device. So effective is this, that not only does it prevent the boat capsizing in sea-ways, but it carries this type of boat on practically an even keel, when run in any direction to the sea, even in comparatively rough water. While I realize that this is a very broad statement, it has been fully borne out in practice. The Viper V type hull is dryer, throws less water aboard at all speeds and in all conditions of water than do other types. This is due partly to the fact that the topsides forward are not incurving, but are parallel, there being thus no "bluff of the bow" to raise water above the deck line; and partly to the fact that no spray is thrown out at the sides to be blown inboard aft "by a beam wind."

One Year of the Flying Boat.

(*Continued from page 9*)

Verplanck's boat has deteriorated very little; an interesting fact when compared with the remains of a forty-mile hydroplane after a hard season's use.

Perhaps the limit in flying boat demonstrations was Mr. Vilas' wooing. After testing his flying boat with a few trips near New York City, and a flight across Lake Michigan—from St. Joseph, Mich., to Chicago,—Mr. Vilas took the machine to the St. Lawrence and used it as a right bower in courting the young lady who is now Mrs. Vilas. That Mrs. Vilas approves of the flying boat may be judged from the fact that a new one has been ordered for their use at the Thousand Islands next summer.

In several instances match races between the 90 h.p. Curtiss Flying Boats and some of the fastest hydroplanes in the country have been pulled off, but the flying boat is so much faster than any of the hydroplanes, the contest lacked excitement for the spectators. For instance, when Mr. Vilas raced P. D. Q. III twice around the Gold Cup course on the St. Lawrence he stopped the flying boat at the end of the first round, changed passengers, let the hydroplane get a good lead on the final lap and then beat him easily.

Of the season's later converts to the flying boat, Commodore William E. Scripps, of Detroit, is probably best known to the motor boat fraternity. He has done a lot of flying this summer, despite the fact that among other activities he is a manufacturer of marine motors, who might reasonably be expected to resent the intrusion of the flying boat into the marine field.

Then there were Mr. Marshall Ried, of Philadelphia; Mr. Ellwood Doherty, of Buffalo; Mr. Barton L. Peck, of Detroit; Captain Ernest Bass, of London; Captain Augustine Parla, of Havana; Mr. Kennedy de Lemos, of Rio Janiero; William Thaw, of Pittsburgh; Mr. Gerald Hanley, of Providence; Mr. W. S. MacGordon, of Chicago, and half a dozen more in different parts of the country. They have flown by daylight and moonlight, cruised and raced for a hundred thousand miles and more of actually recorded flights, and not one of them has suffered an accident worth recording. Mr. Vilas told me that in 3,500 to 5,000 miles of aerial travel his total upkeep cost had been thirty-five cents.

The fascination of the flying boat seems not to be limited by age, sex or previous condition of servitude. C. C. Witmer, who acted as aerial pilot for Mr. McCormick, asserts, after flying with more than a score of Chicago's society women, that women take flying more calmly than most men. Miss Ida Tarbell, exposeuse of Standard Oil, expressed her delight of her first flying experience in an article of some pages recently published. Mrs. Scripps, the 72-year-young mother of Commodore Scripps, finds much pleasure in sailing with her son over Lake St. Clair in his big Curtiss Flying Boat.

Tunnel Stern Boats.

(*Continued from page 14*)

kept in mind is that the water in the tunnel above the waterline is an added weight, and when the tunnel is full the boat will settle by the stern on account of it.

We now come to second of our subject: Construction. This is, indeed, worthy of special consideration, for while tunnel construction in a steel vessel is comparatively simple, in a wooden boat it is rather difficult. I shall not attempt to go into this in detail, but simply to point out a few methods and leave the rest to the builder.

To plank a boat up through a tunnel is a difficult task. If the tunnel is given a section, as in figure 2, the bottom planks, passing into the tunnel and forming its sides, will have to turn through complete right angles. If the tunnel is rounded off, as shown dotted in figure 3, the task may be a little easier. However, for an amateur to continue the planking of the bottom up into the hold is almost an impossible feat. No one but the best of professional builders would be expected to do this, and probably very few would be willing to attempt it. When the planking goes up into the tunnel extra planks will have to be fitted because of the increased area caused by the sides of the tunnel. If the tunnel is to be planked, the best way is to stop the bottom planking at the forward end of the tunnel and to fit an oak piece about twelve or eighteen inches in length, forming the curved entrance to the tunnel. The tunnel planking could then be steamed and fitted separately and rabbetted into this filling piece. Narrow planks will have to be used and considerable planning done before beginning. Oak side-pieces should also be fitted, as shown in figure 6, in section. This figure also shows the tunnel frames and floors and the means of fastening. The planking from the forward end of the tunnel, figure 4 (*a*), to the center, 4 (*b*), is the most difficult part; from the center aft it is much easier.

It will be seen that the ideal tunnel shape, as outlined earlier in the article, is not the easiest to construct. The shape of the tunnel will have to be sacrificed to construction a great deal, especially when the tunnel is planked.

Cedar Lumber

ANY QUANTITY, ANYWHERE

AT ONCE

JORDAN BROS. LUMBER CO.

Masten Tops, Spray Hoods, Cushions

HIGHEST grade in design, materials and workmanship with prices lowest for any products of equal quality. Write today for catalog, with prices and full descriptions. Contains valuable information for every prospective buyer.

THEO. H. MASTEN CO.

34 EAST 9th ST. NEW YORK

MAXIMOTOR

IN A CLASS BY ITSELF

50-150 H. P. Units

MAXIMOTOR MAKERS DETROIT

6-Cylinder—100 H. P.

1540 JEFFERSON AVENUE

We Equipped ¾ of the Race Winners

You can get results if you will be guided by "Practical Information" and our Marine Hardware and Specialty Catalog.

MECHANICAL DEVICES CO., 9th Street, Watervliet, N. Y.

MIANUS TWO CYCLE MOTORS

GUARANTEED FOR LIFE

Now in their Sixteenth Successful Year.

3 to 30 H.P. One, two and three cylinders.

Built to meet U. S. Government Specifications. Used in nearly all Gov't. Depts.

Write for Bulletin 22.

The Mianus Motor Works, Stamford, Conn., U.S.A

MORRIS CANVAS MOTOR HULLS

The most serviceable light hull in use. 14 miles per hour, for $250.00. High grade construction and equipment. Length 20 ft.

B. N. MORRIS, 125 State Street Veazie, Me.

Largest Automobile Supply House in America

15 STORES IN UNITED STATES 15

Write for Catalog mailed free

CHAS. E. MILLER

97 Reade St. New York City

The Motsinger Carburetor

IS ABSOLUTELY GUARANTEED to give more miles per gallon than the carburetor you now have on your boat or motor car. It will turn your propeller more revolutions per minute and add speed to your car. You can go slower without pulling your clutch. Write for information.

MOTSINGER DEVICE MFG. CO.

934 First Ave. Lafayette, Ind., U. S. A.

Pearl Revere Clutch

NO GEARS.

ONLY ROLLER BEARINGS and CONES. GRIP INSTANTLY and FIRMLY. BEST REVERSE CLUTCH ON EARTH.

PEARL MACHINE COMPANY

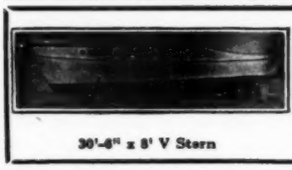
220 West Elizabeth St., Detroit, Mich.

RICE 20-FOOT SPECIAL LAUNCH $275

A $400. Boat For $275. If you are going to buy a boat don't fail to get our catalogue.

RICE BROTHERS COMPANY, East Boothbay, Maine

Don't fail to see our 1914 Models---N.Y. Motor Boat Show, Jan. 31 --- Feb. 7.



30'-6" x 8' V Stern

RICHARDSON

Anything in the boat line K.D. or Complete

Write for Estimates on your requirements.

G. R. Richardson

SWEENEY ST.

No. TONAWANDA N. Y.

THE PERFECT POWER PLANT

FAY & BOWEN ENGINES

The Perfect Power Plant

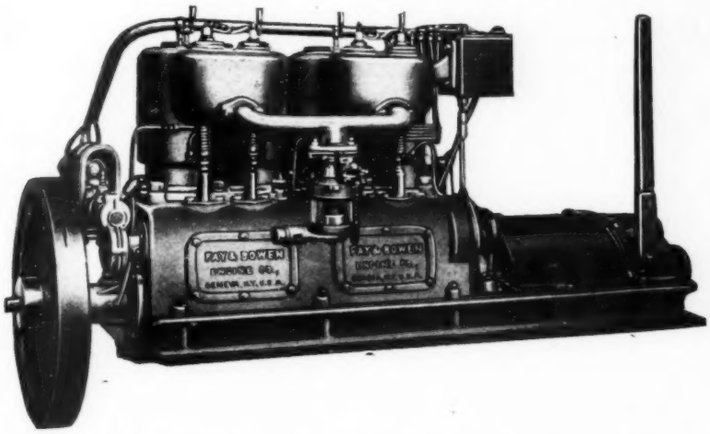
"Estrella" at full speed

"ESTRELLA" is one of the Lake Hopatcong fleet, a smart runabout, owned by Mr. T. E. Tolson, proprietor of the Hotel Bristol, New York City. "Estrella" was winner in two of the series of races given by the Lake Hopatcong Yacht Club in 1913.

CONSISTENCY

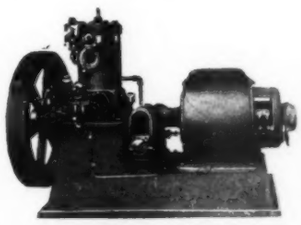
Fastest time of "Estrella" in any 1913 race, 20 miles per hour.
***Average* time of "Estrella" in *all* 1913 races, 19½ miles per hour.**

This is the most positive proof possible of the reliability and consistency of her engine.



"Estrella" was driven to victory by a Fay & Bowen 4-cycle, 4 cylinder, 20-35 H. P. Perfect Power Plant, Aluminum crank-case, clutch-case and sub-base Bosch Magneto ignition, Dual type.

Mrs. Tolson ran the engine all summer and found it so easy to operate and so ready to start "on the spark," Mr. Tolson wrote us, "I don't believe she had to crank it half a dozen times the whole season."



Independent electric light units in sizes suitable for any cruiser.

Send to us for literature telling about the Fay & Bowen line; 4-cycle engines, 2-cycle engines, electric lighting units for big boats and our family launches and fast runabouts.

FAY & BOWEN ENGINE CO.

No. 104 Lake Street Geneva, N. Y., U. S. A.

Look for us at the New York Show

THE PERFECT POWER PLANT

APELCO

Electric Lighting and Starting System for Motor Boats. Electric Lighting and Starting Systems for Automobiles. Electric House Lighting Outfits and Golden Glow Lamps. Apelco products are the standard by which others are judged.

THE APPLE ELECTRIC COMPANY
Canal Street Dayton, Ohio

KNOX MARINE MOTORS

operate perfectly on kerosene equipped with the
NEW KNOX KEROSENE CARBURETOR
A radical improvement over our former model, the most efficient kerosene carburetor on the market.
KNOX FAMILY RUNABOUTS—a twenty-foot boat carrying ten persons; with 3-4 H. P. motor, $295.00; with 12 H. P., $345.00.
Write today for catalogs.
CAMDEN ANCHOR ROCKLAND MACHINE CO., Camden, Me.

ELDREDGE-WHITAKER HYDROPLANE

25 MILES PER HOUR GUARANTEED
Distributors for Lamb and Winton Four-Cycle Marine Engines, Fulton and Erd-Featherweight Two-Cycle Marine Engines.
Full line of engines and boats always on exhibit at our showrooms.
ALBERT E. ELDREDGE CORPORATION
Fulton End Concourse 30-50 Church St., New York.

NICHOALDS 4 CYLINDER 4 CYCLE MOTORS $100

THREE CYLINDER RELIANCE MOTOR $75
Marine Reverse Gears
We always carry a full line of Motor Boat and Automobile Accessories. Write for price list.
NICHOALDS CO., 426 Grand River, Detroit, Mich., U. S. A.

Mohawk Motors

FOR SPEED, PLEASURE AND HARD WORK.
Single Cylinder, 3½ H.P., 5-6 H.P., 7 H.P. & 8 H.P. Special.
Double Cylinder, 7 H.P., 10-12 H.P., 14-20 H.P.
Three Cylinders, 18-21 H.P., 21-30 H. P.
Four Cylinders, 30 H.P. Write for catalog.
THE S. R. MFG. CO.
SCHENECTADY, N. Y.

WONDER ENGINES

GASOLINE AND KEROSENE
MOST POWER for LEAST MONEY
For speed, pleasure and heavy duty. Guaranteed Five Years. Write for new catalogue. Easy payment plan.
Wonder Mfg. Co., 260 Tallman St., Syracuse, N.Y.

VICTOR PROPELLERS

In testing the merits of the various propeller forms, it was found, that the true screw is the best speeder.
True Pitch. Smooth Surface.
Reid Wheel Co., 378 Bank St., Newark, N. J.

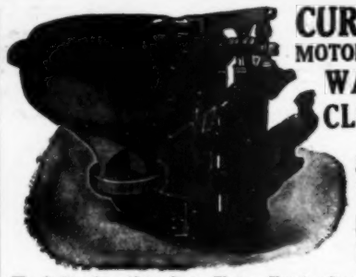
OXFORD

Marine Motor
Reverse Gear
Kennedy Carburetor
L. D. ROBBINS CO., LYNN, MASS.

SAMSON TILLER ROPE

Waterproofed
Solid braided cotton with center of phosphor bronze wire. Strong and durable, and will not stretch or rust. Send for sample.
SAMSON CORDAGE WORKS, Boston, Mass.

We have ready for shipment completed hulls, also semi-finished hulls from 18 ft. to 80 ft. We furnish knock-down frames and all parts for any size motor boat.
Designers and builders of Launches, Cruisers, Auxiliary Yachts and Tenders. Write for prices and description.
ROBERTSON BROS., Foot of Bay St., Hamilton, Can.



CURTISS MOTOR-BOAT WATER CLOSET

$19.00 with seat only
$20.00 with seat and cover
We built this Motor-Boat Water Closet after carefully considering the designs and requirements of small cruising boats and the demand for a low-priced fixture, suitable for above or below waterline use. When installed above the waterline it only requires a sea-valve on suction pipe. Its simplicity and ease of installation enable anyone to install it.
Pacific Coast Agents: McCaffrey Bros. Co., San Diego, Cal. Maloy-Blanchard Co., San Pedro, Cal. Sunde & Erland, Seattle, Wash. Shea Sales Co., Montreal, Canada. Gas Power & Supply Co., Portland, Ore. Marine Engine & Supply Co. Los Angeles, Cal. Canadian Fairbanks-Morse Co., Montreal, Canada.
Manufactured solely by
The J. H. Curtiss Co., 2 South Street, N.Y.

DAVIS DINKS

First thing the yachtsman thinks of when he needs a tender is a "Davis Dink." Row or power—6 to 14 ft. in stock. Sturdy boats—stand hard service. Conveniently arranged for passengers or supplies. 8 ft. tender weighs 65 lbs.—carries four passengers. *Catalog free.*
The DAVIS BOAT WORKS COMPANY
Washington St. Sandusky, Ohio

PROPELLER CUFF LINKS

25c per pair

Mail Prepaid
A Miniature Propeller Wheel
Novelty made of Fine Silver Metal
AUGUST BUERMANN MFG. CO.
makers of
Brass and Bronze Marine Hardware
212-220 Jelliff Avenue :: Newark, N. J.
Send for our prices

Build Your Own Boat

The Frame We Ship You
rom our patterns or knock down frames. You save 3-4 the cost and enjoy the work. Patterns and frames for boats of all types and sizes, from the canoe pattern at $1.75 to the 65 ft. yacht frame at $350, a full line of heavy hu commercial boat frames.
—SEND FOR OUR CATALOG—
which tells you all about it. You can build a 20 ft. launch for $30 from patterns, that you could not buy at any factory for less than $150, or you can buy the complete frame and build this 30 ft cruiser shown in the picture for less money than you would have to pay for the cheapest 25 ft. finished cruiser you could buy.

The Boat You Build
DEFOE BOAT & MOTOR WORKS, 3218 State St., Bay City, Mich.

Universal	Standard Life Preservers	$2.00
	Motorboat Life Preservers	1.50
	Swimming Floats	1.25
	Speedboat and Aeroplane Life Preservers	5.00

Real life preservers. Hold head out of water even when completely exhausted or unconscious.
Filled with Prime Japara Java Kapok and patented. Fulfill requirement of Motor Boat Laws. Make fine cushions, too.
Sent on approval on receipt of price. Dealers wanted.
UNIVERSAL SAFETY MATTRESS CO., Inc.
900 E. PRATT ST. BALTIMORE, MD.

Neverout Searchlights

for electricity or acetylene gas.
Booklet mailed free.
ROSE MFG. CO.
937 Arch St., Philadelphia, Pa., U.S.A.

SPAR COATING

a perfect finish for all woodwork, spars and ironwork
Manufactured by Edward Smith & Co. Varnish Makers for 80 years
West Ave., 6th and 7th Sts., Long Island City
P. O. Box 1780, New York City
Western Branch, 3532-34 S. Morgan St., Chicago

Polarine

Best Oil
Handiest Can
Standard Oil Co. of New York

STANLEY MARINE MOTOR

High in Quality—Low in Price
THE STANLEY CO.
SALEM, MASS.
Send for Catalog

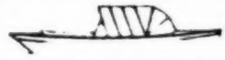
MARBLEHEAD

Anti-Fouling Green and White
for the bottom of Racing and Cruising Yachts and Launches
Yacht White and Varnish Black for top sides.
STEARNS-McKAY MF'G CO., Marblehead, Mass., U. S. A.

Sturtevant

READY TO RUN
ELECTRIC VENTILATING SETS
for ventilating cabins, toilets, etc. Give positive ventilation. Run from storage batteries. Hundreds in use on U. S. Navy Ships.
B. F. STURTEVANT COMPANY, Hyde Park, Boston, Mass.
And all Principal Cities of the World.

WILLIAM E. THOMAS & CO

SPRAY  HOODS
Brass Frames and Fittings covered with government khaki duck. The best hoods on the market. Send for prices and catalogue.
42 South Street, NEW YORK, N. Y. Telephone 1813 Broad.

The Star Air and Water Pumps

Send for catalogue.
W. & J. TIEBOUT
MARINE HARDWARE
No. 118 Chambers Street, New York
Send 4 cents postage for Marine Catalogue

TREBERT RELIANCE ENGINES

Poppet Valve Type—4/40, 4/60, 6/90, 6/90, 4/75-Heavy Duty. V-Piston Valve Type—8 Cyl., 80-100 H.P.; 16 Cyl., 160-200 H.P. If you wish to reach the mile-a-minute speed, your boat should be powered with our "V"-shape Piston Valve Engine. Write today for complete catalog and prices.
H.L.F. Trebert Engine Works, 495 St. Paul St., Rochester, N.Y.

TOPPAN POWER DORIES AND MOTORS

Safe. Best Sea Boat Built. $150 up. Send for Catalog
KNOCK DOWN DORIES EASY TO BUILD.
Send for Free K. D. Circular and Prices.
TOPPAN BOAT MFG. CO., 21 Haverhill Street, Boston, Mass

Tuttle Marine Motors

FOR EVERYTHING FROM A CANOE TO A CRUISER
18 Years' Experience. Unlimited Guarantee. Write for Catalog.
TUTTLE MOTOR CO., 615 Holden St., Canastota, N. Y.

"VICTOR" Capstan

STRONG COMPACT EFFICIENT

The best and cheapest capstan on the market. You can stand up to work with a "Victor." Can be reversed in a second, to revolve in opposite direction.

Write for descriptive literature.

Send three 2-cent stamps for first-class Course Protractor

WILCOX, CRITTENDEN & CO., Inc.
4 So. Main Street
MIDDLETOWN, CONN.

Sole manufacturers of the Maxim Marine Silencer
World's Largest Manufacturers of Marine Hardware

Canadian Fairbanks-Morse Co., Ltd., Exclusive Distributors for Canada

Kahlenberg MARINE MOTORS

WHAT IS THE BEST MOTOR?

"The Kahlenberg," do you expect us to say? Yes, we honestly think so, and we also feel that you will think so when you know as much about it as we do. If you use a marine motor or ever expect to use or buy one, you should know all the exclusive, superior features of the

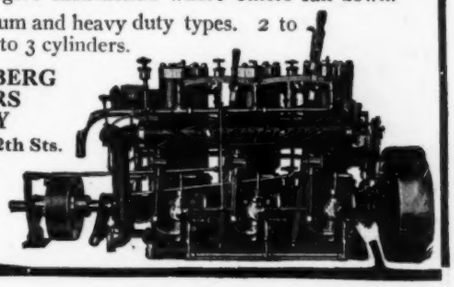
Kahlenberg

This motor reverses from full speed ahead to full speed astern like a steam engine. It burns kerosene, distillate, or benzine for fuel just as well as gasoline and consumes less than one pint of fuel per h.p. per hour. Self starting. When running on light load you can cut out one or more cylinders if desired.

Kahlenberg Motors have made good in all lines of hard work. They give satisfaction where others fall down.

Made in medium and heavy duty types. 2 to 85 H. P. 1 to 3 cylinders.

KAHLENBERG BROTHERS COMPANY
Monroe & 12th Sts.
Two Rivers, Wis., U.S.A.



"SHOW TIME is SALES TIME"

The February issue of Motor Boating will be the Big

DOUBLE SHOW NUMBER

Containing full advance information on the two big motor boat shows of the season—

NEW YORK SHOW—Jan. 31st to Feb. 7th

This special number will be without question the greatest show issue of any marine magazine ever published. Every detail of both shows will be thoroughly covered. It will give the first and most complete show information, appearing early enough to give full publicity value to the show advertising it contains.

As an advertising proposition this is a bargain of more than double value. Every manufacturer, every dealer, every boat enthusiast is vitally interested in one or the other of these shows, if not in both of them. They will all read the Double Show Number of Motor Boating. It will be of intense interest to all who visit either show, and to all who do not see the shows and must enjoy them by proxy through the pages of the trade magazines.

CHICAGO SHOW—Feb. 28th to March 7th

All exhibits at New York and Chicago will be illustrated and described in February Motor Boating. All the standard products as well as the novelties will be included. A complete journalistic record and forecast of the shows is the editorial policy on which this issue is being compiled.

All the special show arrangements spoken of above are in addition to the regular editorial features and departments of Motor Boating. Nothing will be neglected on account of the unusual nature of this issue. It will therefore possess a degree of value never before equaled, for both reader and advertiser. Advertising rates will not be increased for this issue.

SEND YOUR RESERVATION AT ONCE

J. S. HILDRETH
Advt. Mgr.

MOTOR BOATING

119 West 40th Street
NEW YORK CITY

National Motor Boat Shows

For space, information, etc., address
IRA HAND, Secretary, 29 West 39th St., N. Y. C.

NEW YORK
Madison Square Garden
January 31st to Feb. 7th, 1914

CHICAGO
Coliseum
February 28th to March 7th, 1914

MOTOR BOATING'S circulation offers to advertisers the most concentrated buying power in the marine field. It is read every month by nearly one hundred and fifty thousand people who **should be** vitally interested in your product, as motor boat owners, dealers or manufacturers.

Buyers of either of these classes can be reached more cheaply per thousand per month through MoToR BoatinG than by any other equally efficient medium of advertising. This economy of circulation is due to the fact that it is all of the one-hundred-per-cent. kind. Every reader needs your goods and every reader can afford them or he would not be reading the foremost marine magazine.

Write for advertising rates to

MoToR BoatinG

J. S. Hildreth, Advertising Manager — 119 West 40th Street, New York

22 People Died in This Wreck
—an awful toll—and more terrible because it was preventable.
Alfred Henry Lewis strikes to the rotten core of the stock-watering and high finance that has brought ruin to our country's railroads and death to hundreds of people. "Own the railroads or the railroads will own you" is his warning.
Tense, pointed, prepared after long study by skilled investigators, his indictment embodies some of the most comprehensive ideas yet advanced on the railroad situation. All patriotic Americans, men or women, owe it to themselves to read what Mr. Lewis says in the articles now running in
Hearst's Magazine
"The Live Review Publication"
Read These Railroad Exposures
in the next three months of Hearst's Magazine. Only a quarter and your name written below will bring you a three months trial subscription at 45% saving. Tear off immediately and mail today. Hearst's Magazine, 119 West 40th Street, New York City.
Name .....
Street .....
City .....M.B. 1-14
"Your Money and Your Life"

Annual Report of the President of the A.P.B.A.

By H. T. Koerner.

DURING the past year the Association has had a normal and satisfactory growth. The number of individual clubs has passed the 150 mark and the Association is gaining not only in numbers, but in quality of its constituent units. The field of the Association is spreading in usefulness far beyond the hopes of your officers and through the formation of four important Local Sections, the efficiency has been correspondingly increased. The California Section with clubs on the Pacific Coast and inland waters, the Eastern Canadian Section with activities in New Brunswick, the Hudson River Section devoted to the sport on the Hudson River, and the Florida section have brought the effective strength of the Association into greater power and its deliberative efficiency into broader fields than at any time during its career. The acquisition of four new vice-presidents into its council, increasing its membership to 11, representing motor boat activities from such widely separated localities, brings into its deliberations much that has been lacking in the past and emprasizes more than ever the nation-wide influence which the Association exerts today. It is truly a source of congratulation to note the splendid results that have followed the efforts of your officers and we may well be proud of the structure erected for the use and well being of sport in North America.

THE RACING COMMISSION.

Promptly after the close of the annual meeting last November, the Council appointed a Racing Commission in conformity with the terms and provisions of the new Constitution then adopted. Mr. Allen K. White, chairman; Mr. Reuben B. Clark, secretary, and Mr. Frederick K. Lord, were selected as members of this important commission, to carry out the reforms so imperatively needed in the conduct of motor boat racing. The commission has carried out its instructions and a very satisfactory beginning is made in the collection of data bearing on every phase of motor boat racing, securing of records over verified courses and the control of timing in the judges' stand. At all sanctioned races the officials appointed by the Racing Commission have acted in strict conformity to the duties imposed and thus for the first time in the history of motor boat racing, correct and authentic records have been secured for permanent tabulation in the year book of the Association. The results thus obtained through sanctioned races are not as numerous as they should be, but it is a healthy beginning in a much needed reform. Quite naturally, some objection has been made by clubs and associations to the exclusive manner in which permanent records are being secured and recorded, but these objections can be readily overcome by the simple process of becoming members of the Association, and conforming to the rules that we have adopted for the safeguarding of actual performances. Wildcat races will be run as heretofore, some of them primarily for the purpose of advertising a certain locality or accelerating the sale of some specific engine, hull or part. The usual tremendous and impossible speeds are produced to order, but such races are quite immaterial to the general result. These personally conducted enterprises are always out of proportion to the effort made to attract the eye of the public and have neither permanent value or standing. It is however a robust fact that the vigorous protests launched against exploiting races for specific purposes, has borne fruit. The absurd claims for speed made in 1911 and 1912 usually obtained over short courses, have shrunk materially in 1913, although faster boats have been in operation. The sobering influence of determined protest has accomplished good and the scandal of exploitation will be entirely checked through the reforms adopted by the Association.

OFFICIAL REPRESENTATIVE FOR INTERNATIONAL RACING.

In previous reports, your President has urged action looking to official representation by this Association in all international races. There is continued reason why the American Power Boat Association should be the representative for all international events in America. It should assume all the preliminaries for this purpose and should specify the club or association of clubs, within its jurisdiction, to conduct all such races. The large growth, the breadth of the Association's influence, its enormous geographical extent, operating as it does, from the Atlantic to the Pacific Seaboard and from Canada to Cuba, makes such representation necessary if its relation to motor boat interests in America were clearly understood by the representatives of foreign organizations, in whose hands the negotiations for such international events are entrusted. It is hoped that the delegates to the annual meeting will be instructed by the clubs which they represent, to adopt a specific resolution that will enable the Association, through its constituted officers, to open negotiations to insure and assume the prerogatives which the American Power Boat Association is clearly entitled to by reason of its official standing, its influence and its strength.

RESTRICTED BOATS FOR LOCAL RACING.

It is to be hoped that more headway will be made in the classes of restricted boats for local racing so repeatedly advocated by this Association. Club racing for semi-speed boats is rapidly dying out. No one will deny that this particular boat is the back bone of local racing in nearly every locality where land locked waters offer special advantages. It is idle to maintain that the displacement boat, which was the pioneer of all racing, has been permanently superseded

The Caille Portable Boat Motor
Turns Row Boats Into Launches

CAN be instantly clamped to any square or pointed stern row boat immediately turning it into a reliable little launch capable of running 7 to 9 miles an hour or slow enough to troll. The Caille Portable Boat Motor is steered by a rudder like a launch—not by the propeller.

The rudder is of our folding, stone-dodging type (Pat. applied for). The weedless propeller is protected by a substantial fin. Motor generates 2 H. P. Half a turn of the fly wheel starts it. Can be easily adjusted to any angle or depth of stern. Weighs about 50 lbs. Easily carried. Can be used in salt or fresh water. Made of best materials. Fully guaranteed. Send for beautiful catalog—get the details.

Reliable Agents Wanted

Our extensive advertising campaign is creating a tremendous demand for this engine. We must have reliable agents everywhere. A postal brings our agent's proposition immediately. Write now—before the territory goes to some one else.

Caille Perfection Engines

have long been considered the standard among two cycle engines. Their wide range of sizes and types—2 to 30 H. P.—1 to 4 cylinders—has made them immensely popular in both pleasure and work boats. Caille engines can be supplied for burning any liquid fuel, including gasoline, kerosene, distillate, alcohol, naphtha, etc. They can also be furnished with our Perfection Waterproof Igniter, eliminating batteries, coils, timers, etc. No amount of water can damage this system of ignition. Uses but one wire. Simple and absolutely reliable.

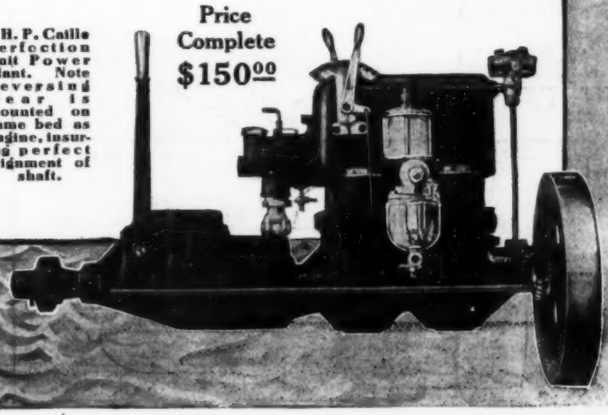
Send for catalog. Agents wanted in unassigned Territory.

Caille Perfection Motor Co.,

1421 Caille Street **DETROIT, MICH.**

8 H. P. Caille Perfection Unit Power Plant. Note Reversing Gear is mounted on same bed as engine, insuring perfect alignment of shaft.

Price Complete $150.00



"SANDS" Sanitary Fixtures

Used all over the world by people who know and demand the best

"KNOCKABOUT"—PLATE S-34

The "Knockabout" Improved Pump Water Closet, Vitro-Adamant Bowl, 8½ in. Composition Supply and Waste Pump, fitted with "Sands Patent Automatic Safety Supply Foot Valve" and "Sands Patent Back Water Check Valve." These prevent flooding.

Pump rough, finished trimmings, oak seat and cover.....$32.50
If mahogany seat and cover, add.. 1.50

Weight: Net, 45 lbs.; Gross, 75 lbs.

High grade medium priced closet occupying small space.

You can install a folding lavatory in your boat at any time. Why not NOW?

PLATE S-186

The "Arco" Folding Lavatory, N. P., copper lining, combined round basin and slab in one piece. N. P. composition pump combination swing supply faucet, N. P. brass waste and supply couplings, oak woodwork.

Complete as shown.....$25.00

Height over all, 19⅛ inches; width, 15 inches; depth closed, 5½ inches; depth open, 16½ inches; basin, 10 inches.

PLATE S-126

The "Glenora" Composition Flange and Coupling for use on supply and discharge pipe of closets. Straight or bent coupling.

¾ in.....$2.25
1 in..... 3.00
1¼ in..... 5.25
2 in..... 6.00

PLATE S-750-A

New Style Double-Acting Bilge Pump, with discharge and suction hose.

No. 1—Chamber 1⅛ in. diam., 15 in. long $5.00

No. 2—Chamber 1½ in. diam., 15 in. long $6.50

No. 3—Chamber 2 in. diam., 24 in. long $14.00

HAVE YOU SEEN THE NEW "WINNER" CLOSET FOR $19.00?

Large assortment of closets, lavatories, deck plates, ventilators, portlights. Pumps for water, oil and gasoline, shown in CATALOG "R" free upon application.

A. B. SANDS & SON COMPANY

1849 "SIXTY-FIVE YEARS OF QUALITY" **1914**

Largest manufacturers in the World of MARINE PLUMBING SPECIALTIES

22-24 VESEY STREET NEW YORK, U. S. A.

No Power for Ships Eclipses Scripps

Naval architects, boat builders, yacht owners, experienced seamen, work boat men, all will tell you that the Scripps Complete Marine Power Plant is the most dependable gasoline outfit that you can buy.

It has repeatedly demonstrated its reliability in tests of the most hazardous kind, driving a 35-foot motor boat from Detroit to St. Petersburg, successfully traversing the Niagara Rapids and Whirlpool not only once, but *again* this year.

That it can adapt itself to varying conditions is proved by the service that it is giving in Alaska and in South America.

Government experts have specified it, foreign engineers have endorsed it, all because of its known quality to stand up under hard, continuous usage.

Scripps Motors are made in 1, 2, 4 and 6 cylinder sizes. Medium and Extra Heavy Duty Types.

Send for catalogue and information about starters, kerosene motors, and the $500 7-horsepower Scripps Midget, a High-grade Tender Motor.

Scripps Motor Company

630 Lincoln Ave., Detroit, Mich.

SCRIPPS MOTORS ARE CARRIED IN STOCK BY

New York	Bowler, Holmes & Hecker Co., 141 Liberty Street
Chicago, Ill.	O. L. Cosgrove & Co., 215-219 Englewood Avenue
Philadelphia	W. E. Gochenaur, 631 Arch Street
St. Louis, Mo.	Chas. J. Petill, 1860 W. Market Street
Jacksonville, Fla.	Gibbs Gas Engine Co., Foot of Main Street
Seattle, Wash.	S. B. V. Miller, 72 Marion Street
San Francisco, Cal.	Ellery Arms Company, 583-5 Market St.
Los Angeles, Cal.	Marine Engine & Supply Co., 109 East 7th Street
Duluth, Minn.	Kelley Hardware Co., 118-120 W. Superior Street
Toronto, Ont.	Schofield-Holden Machine Co., 2 Carlow Avenue
New Orleans, La.	Arthur Duvic, 130 Chartres Street

Export Office—17 Battery Place, New York City

Wisconsin Motors

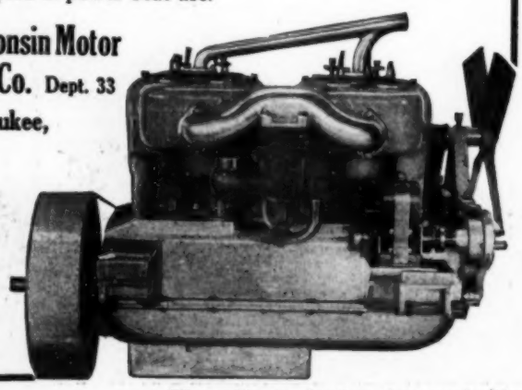
CONSISTENT

Wisconsin Motors not only earned the title of "Road Champion of America" by making a clean sweep of all the big road events this season, such as *Tacoma, Elgin, Santa Monica* and *Corona,* but also won the *Championship of Norway* by water. The motors went through these races without any adjustments whatsoever, demonstrating the absolute reliability under the most trying conditions. The oiling system never fails, and is one of the main features of this remarkable motor.

For speed, stability and power, Wisconsin Motors top the list. They start easily, run steadily, stand the wear and tear, and are always under perfect control. Made in all sizes—4 and 6 cylinder.

Write and we will tell you how well this great motor is adapted to power boat use.

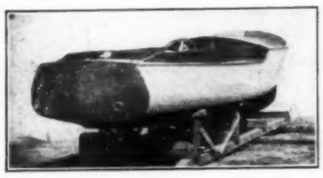
Wisconsin Motor Mfg. Co. Dept. 33
Milwaukee, Wis.



DOYLE "V" BOTTOM

WITH CURVED SIDES

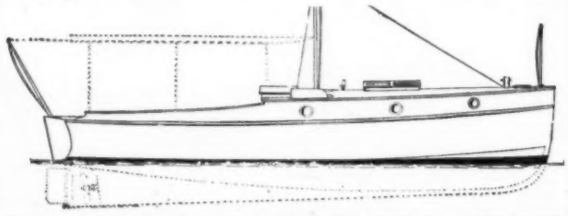
A sturdy, well constructed, handsome boat. Built to withstand the trying conditions along the Atlantic coast.



21 - FT. RUNABOUT

Beam 5 ft. cedar planking, copper fastenings, oak trim, hackmatack stem, special rabetted chine, special hackmatack and oak frames, mechanical devices, shaft log, 2 cylinders, 7 h.p. Erd motor, reverse gear, etc. Speed 11 miles per hour..... **$495.**

28-FT. CRUISER. Beam 8 ft. 4 in., oak frames, cedar planking special rabetted chine, toilet, lavatory, ice box, galley; plenty of locker space; sleeping cabin; large, self-bailing cockpit; 2 cylinder 14 h.p. Stanley motor, reverse gear, sailing lights, fog horn, whistle, cushions, etc. Speed, 11½ miles per hour. This little craft is extremely well laid out and has the cabin accommodation of the average 33-ft. cruiser..... **$1225.**



K. D. FRAMES & COMPLETED LAUNCHES

SIX MODELS:

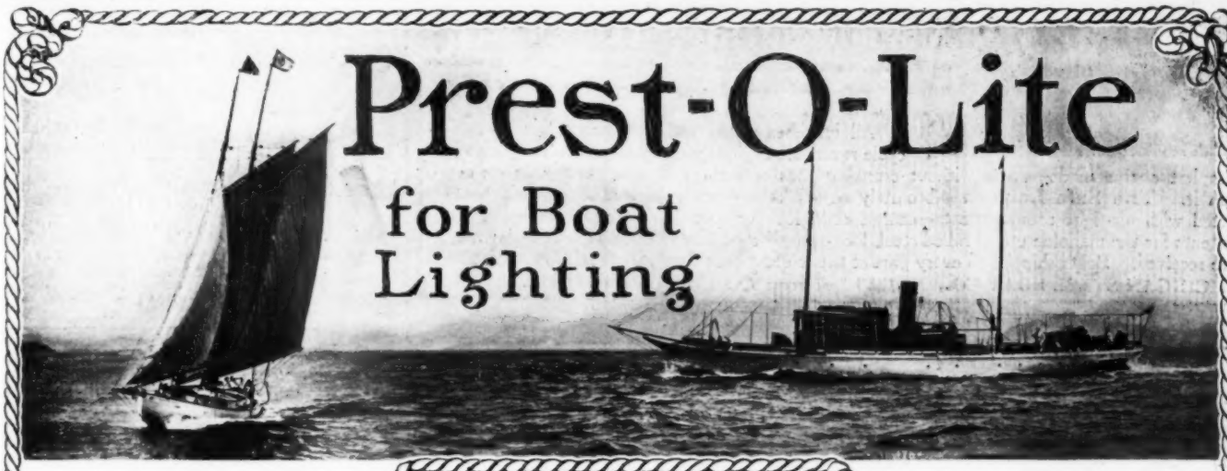
18 FT. LAUNCH	22½ FT. AUTO EXPRESS
21 FT. RUNABOUT	26 FT. RUNABOUT
20 FT. HYDROPLANE	28 FT. CRUISER

YOU CAN BUILD ONE

No steam bending. Instructions printed in simple, non-technical language. No moulds to make. Send for Catalogue.

AMERICAN LAUNCH CO., E. 38th St., Bayonne, New Jersey

Prest-O-Lite
for Boat Lighting



"Lady Ada"

Owned by Isador Zellerbach, of San Francisco, equipped with seven lights and Presto-O-Lite.

Brilliant
Convenient
Dependable

"Lucero"

Owned by Capt. H. W. Goodall, of San Francisco, with Prest-O-Lite equipment for 12 lights and cooking.

It is not necessary that you clutter up your boat with dynamos, batteries, shunts, switchboards, or wires, or expose yourself to the constant care of delicate and complicated apparatus. The lighting system on your boat should be *absolutely reliable.* It should not have mysterious troubles. It must not fail you when you are far from help. That is why Prest-O-Lite is being used on many of the finest yachts and power boats in American waters.

"Push the Button" Convenience

Ideal convenience in lighting the searchlight and the red and green lights, is afforded by the Prest-O-Liter. Turn on the gas, press a button and the lamps are lit, with the flame correct in height.

Prest-O-Lite can also be used, with attractive fixtures, for any number or kind of cabin lights. The gas may be turned on and off at the jet, precisely like city gas.

Automatic Reducing Valve

Reduces the pressure in the pipe lines to 2 ounces.

You can leave the gas turned on at the Prest-O-Lite cylinder, and turn it on and off at the jets, or with the Prest-O-Liter.

Prevents the flame from ever being too high.

Gives the correct flame in all lamps at all times, no matter how many are turned on.

May be purchased without our automatic lighter, if desired.

Reliability

Prest-O-Lite is simple, substantial, trouble proof. It is not affected by dampness, shock or vibration.

Contrast the known reliability of Prest-O-Lite with the mysterious ailments of storage batteries, loose connections, short circuits, and the many causes of trouble which are always present in delicate and complicated apparatus.

Simplicity

Anyone can understand and operate Prest-O-Lite. You need no electrician on your boat. You already have enough mechanism to look after. Prest-O-Lite needs no attention.

Economy

Prest-O-Lite not only costs less to install, but also costs far less to operate than any electric system. Electrical repairs, battery replacement, fuel consumed in driving the dynamo, and other items cost many times more than the necessary amount of Prest-O-Lite gas.

Send for this Folder

It tells why Prest-O-Lite is the best, simplest and most convenient lighting system for any boat, from a small sail boat to a big steam yacht.

It shows views of fine yachts and power boats with Prest-O-Lite equipment.

Get the *real facts* on lighting before you buy any lighting equipment.

The
Prest-O-Lite Co.
(Incorporated)
260 Speedway, Indianapolis, Ind.
EXCHANGE AGENCIES EVERYWHERE

Easily Installed

Prest-O-Lite installation is very simple. Any plumber or mechanic can do the work in a few hours.

The Prest-O-Lite Oil Lamp Adapter is easily and quickly installed in any oil lamp and makes it a combination gas-and-oil lamp with the oil in reserve.

The gas connections (and the automatic lighter connection, if also used) are instantly detachable, making the lamps easy to disconnect if you wish to remove them during the day.

Prest-O-Lite in different sizes provide ample supply for any number of lights, on any size of boat.

Full information on request.

The Prest-O-Liter

The gas is easily turned on and off by simple valves. One knob controls the searchlight, the other controls the red and green lights.

Pushing the button places a large electric spark at the burner tips. Operated by six dry cells.

The flame can never be too high. This is regulated by our Automatic Reducing Valve.

Should this convenience ever fail—as anything electrical may—YOU STILL HAVE LIGHT, because gas lamps can always be lit with a match.

Magnificent Steel Launch $96
Complete With Engine, Ready to Run

18-20-23 and 27 ft. boats at proportionate prices.

All launches tested and fitted with Detroit two-cycle reversible engines with speed controlling lever—simplest engine made—starts without cranking—has only three moving parts—anyone can run it. **The Safe Launch**—absolutely non-sinkable—needs no boathouse. All boats fitted with air-tight compartments—cannot sink, leak or rust. We are sole owners of the patents for the manufacture of rolled steel, lock-seamed steel boats. Orders filled the day they are received. Boats shipped to every part of the world. **Free Catalog. Steel Rowboats, $20.**

MICHIGAN STEEL BOAT CO., 1236 Jefferson Ave., (83) **Detroit, Mich., U. S. A.**

BREAZNELL SPARK PLUG AND TERMINAL CLIPS

Insure Perfect Connections, Permanently Trouble-Proof. Vibration cannot loosen them. Applied without removing thumb nut. Best connectors ever designed. Patents pending.

Breaznell Battery Clips for Dry Cells, increase efficiency by giving perfect contact always. | **Breaznell Spark Plug Clips.** Holds wire locked without solder as well as gripping plug terminal.

60c. Dozen C. O. D. Parcels Post **30c. Half Dozen**

Order to-day. *C.O.D.—no risk.* *Special rates to dealers and jobbers.*

J. H. BREAZNELL 26 Court Street, Brooklyn, N. Y.
ASK YOUR DEALER.

A New Rex Beach Novel

REX BEACH, virile and forceful, writes a story that throbs with the teaming activity of our great metropolis. When he tells you of New York life, he shows you the people who actually walk Broadway. That is why his latest novel,

"The Auction Block"

is so intense, so realistic. That is why the next five years of Rex Beach's work has been contracted for by Cosmopolitan.

Charles Dana Gibson

whose dashing pen has so well caught the charm of the youthful heroine, is drawing the illustrations.

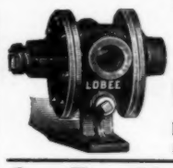
Lorelei, dainty, piquant, and unspoiled, seeking recognition on the stage of a greedy city. If she were your own daughter, you would follow her fortune no closer than you will when you read this story. Get it in January

Cosmopolitan Magazine

You May Have This Novel

in the next eight months of Cosmopolitan for a dollar bill and the coupon below. Don't miss this opportunity. Mail the coupon *now.*

COSMOPOLITAN MAGAZINE
119 West 40th Street, New York City.
Gentlemen:—I want to read Rex Beach's great novel. The $1 enclosed pays for the next eight issues of Cosmopolitan. I understand that this is a special offer open to new subscribers only.
Name .....
Street .....
City .....
M. M. 2-14



If you want Good Circulation on your **Automobile, Launch or Motor Boat, use a**

LOBEE PUMP

LOBEE PUMP & MACHINERY CO.
57 Bridge Street, Buffalo, N. Y.

J E N C I C K
QUALITY COUNTS
Quality of Design *Quality of Materials*
Quality of Workmanship *Quality of Service*
We build heavy duty Motors from 15 to 75 H. P.
WRITE FOR BOOKLET
"J E N C I C K"
Port Chester :: :: N. Y.

GET A
Dayton Launch Lighting Outfit
for your motor boat this season.
Complete description and prices on request.
THE DAYTON ELECTRICAL MFG. CO.,
186 St. Clair St., Dayton, O.

KOVEN GASOLINE TANKS
For Gasoline, Air for Whistles, Oil, Water, Mufflers, Condensers, etc. Heavy sheet iron and plate steel work of any shape desired. Galvanizing of all kinds of boat work.
L. O. KOVEN & BRO.
52 CLIFF STREET NEW YORK CITY

CAMERAS and Camera Supplies
Catalogue Free
Herbert & Huessen Co.
311 Madison Ave.
Room 16 New York City

Mea **MAGNETO** **SRO BALL BEARING**
Sole Importers
MARBURG BROS., Inc., NEW YORK.
Detroit Toronto Chicago

Kerosene Oil Engines
Marine, Stationary, Portable
NO DANGER. Maximum Power, Lightest Weight. Simple, Reliable, Economical. No batteries, Self Ignition by Compression. Fully guaranteed. Write for Catalogue M. ☞No charge for packing.
HATCH OIL ENGINE CO.
Factory, New London, Conn.
Sales Office, 2 & 4 Stone St., New York

WHERE OTHERS FAIL — TRADE LUBROLINE MARK — "Make Motors Make Good"
OILS and GREASES
FISKE BROTHERS REFINING CO.
Established 1870
PITTSBURGH NEW YORK NEWARK

Noxon-Ampco Ignition System
Takes but .1 of an ampere to operate. Cannot get out of order. Cheapest and most efficient system on the market. Noiseless. Both Marine & Auto Types. Is absolutely foot proof and eliminates all insulation troubles. Write for folder 21 for details.
AMERICAN MOTOR PARTS CO.
52nd and Baltimore Avenue Philadelphia, Pa.

The Aaron Automatic Bilge Pump
is the only pump that is really automatic, and the only pump that does clean your boat of gasoline fumes, and thus preventing explosions and fires on your boat.
AARON AUTOMATIC BILGE PUMP CO., INC.
Providence, R. I.

"LOOK FOR US AT THE NEW YORK MOTOR BOAT SHOW"

PEERLESS ENGINES

"The Engine that has made good"

High Speed and Medium Duty

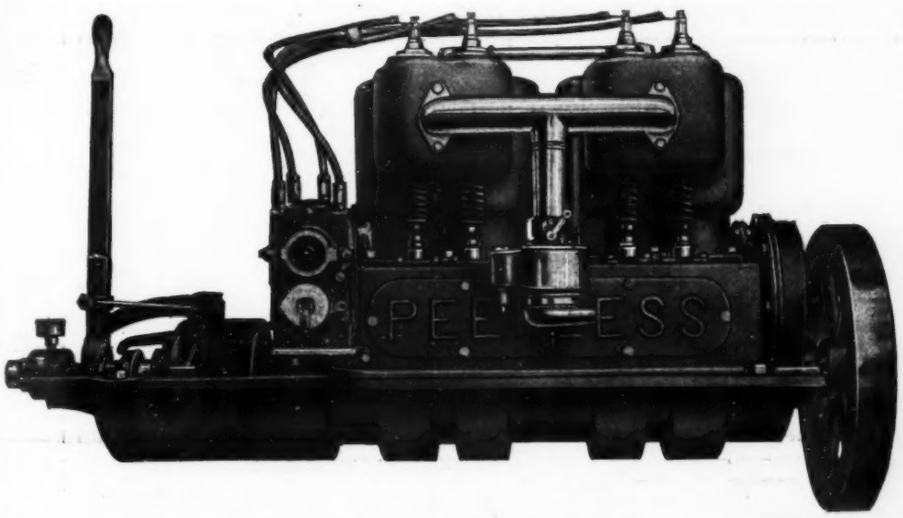
Do not buy an engine rated at extremely high speeds, remember that when this is installed and equipped with a wheel of sufficient size to drive your boat economically, it will be impossible to turn this wheel at any such speed, when such engines are run at slower speeds than that, at which they are rated, the power decreases accordingly.

PEERLESS ENGINES have the necessary bore and stroke to produce the rated horse power at a speed from 600 to 850 R.P.M. This speed is as high as practical for the ordinary boat, however, if these engines are installed in a boat of fair lines they can be run at 1000 turns per minute, and at this speed they develop 25% more than their rated power.

PEERLESS ENGINES are guaranteed in every respect, materials, workmanship, and accessories are the best that the market affords, and our shop is equipped with modern machinery and appliances for the production of an engine of the highest quality at a moderate price.

Four-cylinder, 25 to 35 H.P., bore 5", stroke 6" .. $400.00
Two-cylinder, 12 to 16 H.P., bore 5", stroke 6" .. 250.00

Joes Reverse Gear on extension base, $50.00 extra.



Four-cylinder, 16 to 20 H.P., bore 4", stroke 5" .. $300.00
Two-cylinder, 8 to 10 H.P., bore 4", stroke 5" .. 175.00

Joes Reverse Gear on extension base, $40.00 extra.

PEERLESS MARINE MOTOR CO.

BUFFALO, N. Y., U. S. A.

Quality Is Economy

We never advertise a Varnish that has only one virtue. If we can't balance it up it goes to the discard.

Murphy Marines are Sweepstake Varnishes.

They work easily under the brush, but they do not flow like water.

They are full-bodied, but they do not heap up like molasses in January.

They dry rapidly, but they do not dry like shellac.

They are full-oil Varnishes, but they never get sticky in the blazing sun.

They are bone-hard, but they never get brittle in coldest winter.

They have toughness and elasticity.

They rub well and take a fine polish.

They are waterproof and airproof.

They endure the wet salt.

They stand the hard wear.

They are in nothing extreme.

They are in all regards safe.

The Varnish That Lasts Longest

Murphy Varnish Company
FRANKLIN MURPHY, President
Associated with Dougall Varnish Company, Limited, Montreal, Canada

NEWARK, N. J. CHICAGO, ILL.

If you are looking for
QUALITY—EFFICIENCY
and one hundred cents' worth for $1.00, call and see the finest line of the leading two and four cycle Marine engines, Ferro, Stanley, Smalley, Van Blerck, Ideal and Standard. Columbian Propellers. Joe's Reverse Gears.
GASOLENE ENGINE EQUIPMENT CO.,
133 Liberty St., New York.

THE GUARANTEE
of reliability in electrical apparatus is this
TRADE MARK
of the largest electrical manufacturer in the world
GENERAL ELECTRIC COMPANY
General Offices: Schenectady, N. Y. Sales Offices in 58 Cities. 4350

GIES

NEVER AGAIN!
Decide now to have a reverse gear for next season—the best gear you can buy—the GIES.
The Gies is not the most expensive, but for safety, convenience and dependability it is without an equal. 20,000 giving satisfactory service. Every one sold on the "satisfaction or money back" plan.
Get full particulars now and be ready for 1914.
GIES GEAR CO., 49 E. Fort St., Detroit, Mich.

"THE YANKEE" SILENT MUFFLER
The only muffler made without back pressure or noise at all speeds of the engine. Water-tight. Made of Galvanized Steel and light in weight. Made in various sizes. Over 300,000 in use. For sale in New York, by Durkee & Co., Chas. E. Miller,

"Guaranteed for Life"
E. J. Willis Co., John O. Hopkins; Chicago, Geo. B. Carpenter, 430 Wells St.; Canada, Canadian Fairbanks Co., Montreal, Toronto and Vancouver. Write for catalogue. Manufactured only by
THE "YANKEE" COMPANY UTICA, N. Y., U. S. A.

HACKER-HYDROPLANES
KITTY HAWK II, OFFICIAL RECORD, 50.65
GUARANTEED 35, 40, 45 & 50-MILE HYDROPLANES AT ATTRACTIVE PRICES.
16, 17, 19-ft. One Design Hydroplanes furnished in Plain, Knock-downs, Complete or with guaranteed speeds of from 20 to 55 miles. Write me for prices.
JOHN L. HACKER, N. A.
313 Hibbard Ave. Detroit, Mich.

$31 31/100 For the high grade 1½ to 2 H. P. Gries Motor. Complete equipment. A two (2) year guarantee with each motor. Write for further particulars.
GRIES ENGINE CO. 45 FORT ST. (E.) DETROIT, MICH

GRAY FITTINGS
WHISTLE outfits, Compressors, Valves, Mufflers, Combination Flag pole and electric aft lights, Spark, throttle and reverse controls, Special fittings, etc., etc. Write for Catalogue D-3.
GRAY-HAWLEY MFG. CO., 937 Jefferson Av., Detroit, Mich.

HALL ENGINES
We have Engined many of the Most World Famous Ocean Cruisers.
4 CUPS OUT OF 5—THE GREAT HAVANA RACE
2 OUT OF 3—BERMUDA RACE, 1909
Four Cycle, 6 to 250 H. P. Heavy Duty.
HALL GAS ENGINE CO. BRIDESBURG PHILA., PA.

HOWARD CRUISER $850.00
The greatest value ever offered for $850.00. A high grade 27 ft. cruiser, with cypress planking, copper fastened, white oak frame, etc. Best quality throughout. Sturdy enough for any sea. High grade 10 H. P. 4 cycle engine. Complete in all details. Also furnished K. D. or complete without engine. *Write today for catalog.*
HOWARD CRUISER WORKS, Westfield, N. Y.

30,000 Detroit Engines Now Using Cheap Kerosene

Best and simplest marine engine ever built. Fewest working parts; handy control lever reverses like steam engine; extra-long bearing surfaces ground and polished. Best lubricating system; waterproof ignition; adjustable steel connecting rod; vanadium steel crankshaft. Finest workmanship, best material.

Wonderful Economy of Operation
Patent Detroit Fuel Injector does work with 2 pints of cheap kerosene where other engines use a quart and a half of costly gasoline.

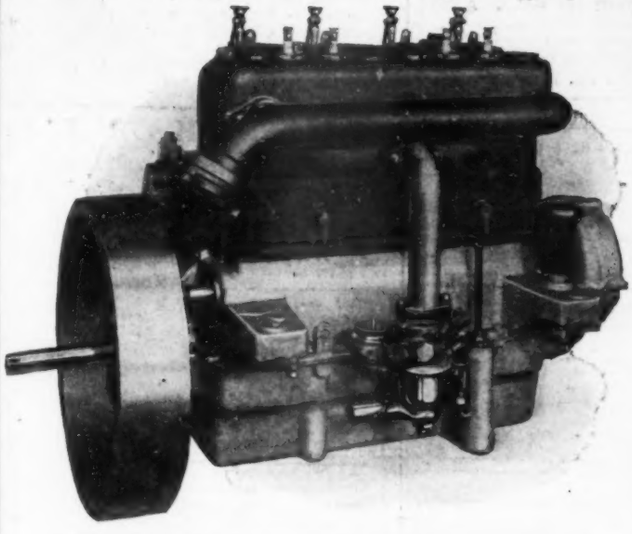
Gasoline going up—try Detroit Kerosene Marine Engine. No matches—no heater devices. Engine makes its power from cold kerosene; also uses distillate and gasoline with greatest economy.

Greatest Marine Engine Bargain Ever Offered
Complete line—high, medium and slow-speed types—sizes 2 horsepower to 50 horsepower—in stock, ready to ship. Suitable for pleasure boats, work boats, tow boats, fishing boats, cruisers, speed boats, hydroplanes, tunnel-bottom boats, stern and paddle-wheel boats, 5-year guarantee. 30-day trial.

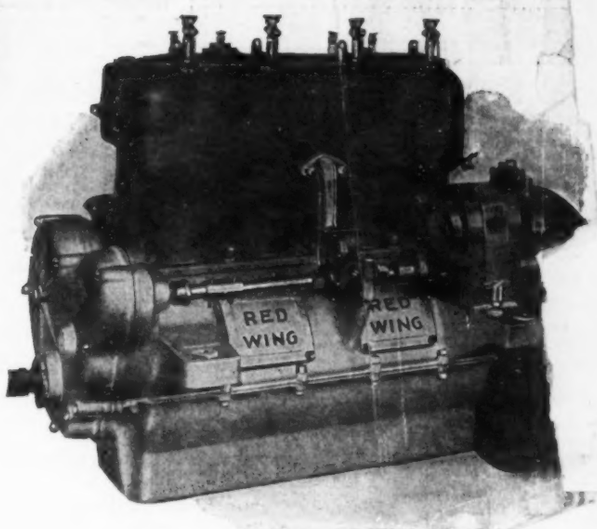
Every Boatman Wants Detroit Kerosene Engine
Liberal commission for selling. Write to-day for illustrated catalog and special proposition explaining how you can demonstrate this wonderful engine and secure a special reduction on yours.
We also make Marine Reverse Gears (174)

DETROIT ENGINE WORKS
1236 Jefferson Ave., Detroit, Mich., U. S. A.

WOLF'S HEAD OIL



"My Kingdom for a Horse"



4-Cylinder Marine Speeds to 1500 R.P.M.
4-Cycle, 24-32 H.P. Weight 390 Pounds **$250**

WHEN HIS NOBS, King Richard, Yelled That, what d'y 'spose he wanted? A "Plug"—or a

"THOROBRED?"

When YOU want to "Get Somewhere," going to be satisfied with an engine when you can travel like a prince or millionaire at the same p

In his hour of Distress the old king's paltry Kingdom wouldn't even Now-a-days the Average Man can have for a song, what a king couldn't price in those days; for instance:

RED WING "THOROBRED"—$250

Day was when a **real** motor like the "Thorobred" was out of the reach of the average man—only kin[gs] could afford them, and in the old days (just a few years, at that) it took a king's income to finance the regi[me] chanics that kept them going.

But away with the musty days of kings and horses. Let's get down to brass tacks. Here's a motor that's sweeping th[e] country like wild fire. With the 1913 season scarcely closed, orders already booked smash all engine records. Agents, builders and users throughout America and Canada, quick to grasp a real opportunity, are flooding us with orders so fast there's a big probability that the capacity of our big factory for 1914 will be taxed to the limit before the 1914 season really opens. Illustrating the demand for the "Thorobred," in appointing our agents we have been compelled in almost every community not already taken, to choose between from two to a dozen applications. In each case we have selected the best man the best firm in their respective communities with a view to insuring you the hig[h] grade of SERVICE, if you become a "Thorobred" driver.

You must be about ready to order YOUR new engine. Don't rush rashly into the purchase of a motor; it means too much to your future boating pleasures. Be sure you're buying satisfaction. Investigate the "Thorobred" beforehand, and avoid regretting your carelessness when you see your neighbor's. You'll agree with us that it's the most modern and in every way the greatest marine engine of its type and size you could buy at any price.

Read these condensed specifications, then tell us you've been reading our "ad" in Motor Boating, and that you want us to tell you all about the "Thorobred":

4-cyl., 4-cyc., en bloc, L head, 4 1-16 bore, 4½ stroke, weight 390 lbs. Any speed up to 1,500 R.P.M. Aluminum crank case and gear housings; enclosed push rods, noiseless helical gears, cam and shaft integral; pump feed oiling, float on gauge. Large hand hole plates; gear rotary water pump. Nickel steel crank shaft 2⅛ in. Large bearings. Hardened steel valve stems. Large valves. Large water jackets. Extremely simple. Mightily efficient in every detail.

Red Wing Rear Starter Steerer and Controls

$30 complete

Easily attached to any motor.

Red Wing Motor Company Department B Red Wing, Minne

8179

When writing to advertisers please mention MOTOR BOATING, *the National Magazine of Motor Boating.*

g Motor Bargains

...erantced for life. Full Equipment.

...der, 1½- 2 h.p. $47.00
...der, 3 - 4 h.p. 67.00
... 6 - 8 h.p. 110.00
... 8 -10 h.p. 130.00
... 10 -12 h.p. 150.00

...r Catalog. Agents Desired.
...AGG MOTOR MFG. CO.
...ayne County Bank Bldg., DETROIT, MICH.

Know Your Engine Speed

TACHOMETERS FOR SINGLE AND TWIN SCREW BOATS.
Look for us at the New York Motor Boat Show.
ELECTRIC TACHOMETER CO.
1344 Spring Garden St., Phila., Pa.

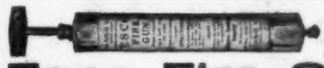
COE'S RIBBON GOLD LEAF

FOR GILDING
Nameboards, Streaks and Figureheads. Easily and quickly applied. No blowing away in the wind. No waste of material. Has been used for 10 years. By leading boatbuilders everywhere.

W. H. COE MFG. CO. Providence, R.I.

Defenders of America's Cup

the pick of America's yachts of today use
NAVALITE
Send for Booklet
...for us at the New York Motor Boat Show.
...HICAGO VARNISH COMPANY
...go New York



$4.85 Postpaid in U. S.

Esco Fire Gun

Write for Catalog and Launch Accessory Bargains.
EMMONS SPECIALTY CO., 240 Jefferson Ave., Detroit, Mich.

CROCKETT'S

Spar Composition
—the original and best known exterior marine varnish in the world. The best Interior Finish is Crockett's
No. 1 Preservative
Send for Catalogue
The David B. Crockett Company Bridgeport, Conn.

ELSEA CLOCKS

...s for use on yachts, steamships, etc., with (patented for) electric attachment for operating ship's ... Made by the largest makers in America of extra 8-day high grade marine, ship's bell, mantel ...uto clocks. Write for price list today.
CHELSEA CLOCK CO.,
...te Street BOSTON, MASS.

Bulb Shank Mooring Anchor

Your boat can't get away. The bulb shank makes it lie flat, but raises enough to ease off sudden strains. Head won't ball up with mud. Eye for trip line makes easy to raise at end of season. Write today for our free "Mooring Book."
FAIRHAVEN IRON FOUNDRY CO., 2 Water St., Fairhaven, Mass.
N. Y., C. D. Durkee & Co.; Boston, A. S. Morse Co.; Chicago, George B. Carpenter & Co.

CUNO TIMERS

are built for service.
FOOLPROOF — TROUBLEPROOF — WATERPROOF.
HIGHEST QUALITY
LOWEST PRICES
Used by the most prominent Marine engine builders.
Send for bulletin BA.
THE CUNO ENGINEERING CORP., MERIDEN, CONNECTICUT

...ne Upson-Walton Co.

...0 West 11th Street, Cleveland, O.

MOTOR BOAT FITTINGS
LAUNCH SUPPLIES
CANVAS SPECIALTIES
...nd Discount Sheet Mailed Upon Request.

BUILD YOUR OWN STEEL BOAT

From patterns and printed instructions. Work easy; material furnished. Save 2-3 cost. Also Completed boats. Send for catalogue and prices.

F. H. DARROW STEEL BOAT CO., 630 Perry St., ALBION, MICH.

2½ H. P. ENGINE

$39.50 ABSOLUTELY HIGH GRADE
SEND FOR CATALOGUE
DE LONG ENGINE COMPANY
83 North Avenue WEBSTER, NEW YORK

WE WIN

Perfex WATERPROOF POWER-ADDING IGNITION SYSTEMS
ASK FOR CATALOG
ELECTRIC GOODS MFG. CO.
CANTON, MASS.

...ROIT REVERSE GEAR

—Reverses—Stops
...ANTANEOUSLY
Most Reliable, Most Compact
Perfect Marine Reverse Gear over the moving parts to throw the oil or grease, tear the skirts, bruise the hands or catch waste. No noise. Manufactured in sizes for from 2 to 30 H. P. We carry all sizes in stock for immediate shipment. Guaranteed for one year. Write for special prices and free catalog. Valuable information from our Consultation Department FREE to motor boat men.
...14 Beaufait Ave., Detroit, Mich.

The Economy of a Monthly Journal

Motor Boating gives a full year's advertising in twelve insertions. Your advertisement in each issue lives a full thirty days. The economy of a monthly over publications of more frequent issues is beyond question. Besides accomplishing the full quota with half as many issues, each number of Motor Boating serves as a buying guide. Readers preserve it several months for reference purposes.

J. S. Hildreth, Adv. Mgr. MOTOR BOATING 119 W. 40th St. New York City

Dandy Dink

"The TENDER for TOUGH service." HEADQUARTERS for POWER & ROWING TENDERS. Open boats & CRUISERS all sizes. Engines & ACCESSORIES. Wisconsin Row Boat Motors.
THE WATER CRAFT CO.
221 Fulton Street New York

MONITOR BOAT FRAMES and ENGINES

Send for new free catalog

MONITOR Boat & Engine Co., Newark, N. J.

HARRIS OILS

"A Little Goes a Long Way and Every Drop Counts"
A. W. HARRIS OIL CO.
236 S. Water St., Providence, R. I.
143 No. Wabash Ave., Chicago, Ill.

Winners DREAM ...s Bermuda Race

COLUMBIAN PROPELLERS

Winners TOSCAM II Wins Return Race

... CRUISERS, SMALL YACHTS, PARTY BOATS, and for ... using propellers less than 30 inches diameter, we back the ...LUMBIAN" "Rocket" Propeller against the world. ...LUMBIAN" Wheels—styles G and H—together with the "COLUMBIAN" "Architects" Propeller, which has beaten everything else ...ydroplanes, are the three MOST POWERFUL PROPELLERS made anywhere in the World to-day.

FOR LARGE OYSTER DREDGES, FISHING BOATS, FERRY-BOATS, PASSENGER BOATS, YACHTS, we can furnish a "COLUMBIAN" Style "H" Propeller that will beat any other Propeller made.

DON'T BUY until you read our booklet, "PROPELLERS IN A NUTSHELL"
It also tells you about COLUMBIAN RUDDERS, Outboard Rudders, Speed Boat Rudders, Hydroplane Rudders, Launch Rudders, Universal Struts, Universal Stern Struts, Combination Outboard Rudders and Universal Stern Struts. *Write.*

COLUMBIAN BRASS FOUNDRY

218 North Main Street
...G FREEPORT LONG ISLAND NEW YORK

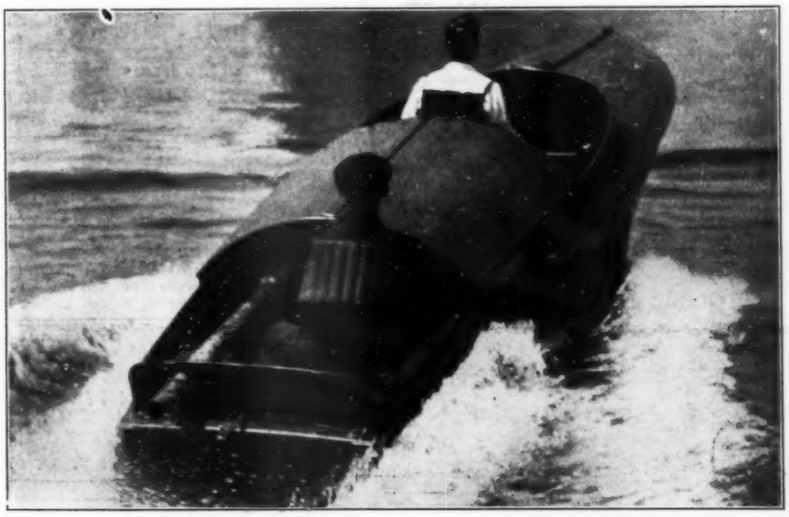
Style H

RELIABILITY

The fierce test of racing is the final proof of a motor's reliability. Like the Marathoners, the racing engine is stripped of every possible ounce of weight and then driven at a speed unheard of in ordinary service. During the season just past, many Van Blercks were raced time and again at 1600 to 1800 revolutions per minute, 33 1-3 to 50 per cent. above normal speed and power.

Van Blercks are the only one design motor prominently in the racing game to-day, and their overwhelming success in 1913 is proof positive of the reliability as well as power of every size and model.

From 14 to 250 H.P., 2 to 12 cylinders, for medium duty, speed and racing, Van Blerck motors are built from one general set of specifications and plans, of the same material and by the same workmen.



"A. F. B." Won Ten Firsts and One Second Out of Twelve Races Entered

For Consistency and Reliability—

Can You Beat the Record of the "A. F. B."?

Philadelphia, Oct. 31st, 1913.

VAN BLERCK MOTOR CO.,
Monroe, Mich.

Gentlemen: In view of the exceptional service rendered by one of your four-cylinder, 85 H. P. engines, installed in my 19-foot 10-inch hydroplane, A. F. B., I voluntarily offer this testimonial.

Out of a total of twelve races in which I entered her, the past season, she finished eleven, winning ten firsts and one second prize, one of which was the South Jersey Championship Trophy for hydroplanes.

This is an enviable record, for which you may justly feel proud, the A. F. B. being acknowledged the most consistent boat that raced in this vicinity the past season.

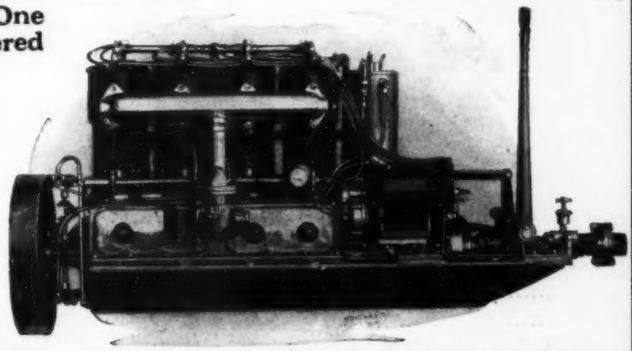
I congratulate you upon the stability and endurance of your engine.

Very truly yours,
(Signed) LOUIS BURK.

Visit us at our new factory in Monroe—the most modern and efficient Marine Motor Plant in the country

Catalogue and "Review of the Racing Season of 1913" on request.

Look for us at the New York Motor Boat Show.



VAN BLERCK MOTOR COMPANY

MONROE, MICHIGAN, U. S. A.

(STEAM OR ELECTRIC FROM DETROIT OR TOLEDO)

ATTACHES to any row-boat in one minute. Speed eight miles.

TRADE MARK
EVINRUDE
DETACHABLE ROW BOAT MOTOR
EVINRUDE MOTOR COMPANY
132 T Street MILWAUKEE, WIS.

WEIGHS fifty pounds, carries like a suitcase. Catalog on request.

COSTS NO MORE THAN OTHER MAKES

THE ORIOLE MARINE ENGINE KEROSENE GASOLINE

Heavy Duty, Two Cycle, 5 to 20 H. P., $110 to $355.

KEROSENE ATTACHMENT tests show no more carbon than with Gasoline. Simple—Economical—Reliable. Attachment extra—Single cylinder, $17. Double cylinder, $25.

PAGE ENGINEERING CO. Hull and Cleggett Sts., Baltimore, Md.

Send for 1913 Catalog

KEROSENE ATTACHMENT

Used all over U. S.

PROFITABLE ADVERTISING

consists in placing your selling message before the greatest number of possible buyers. MoTor BoatinG has the largest guaranteed circulation in the marine field, reaching boat owners exclusively and of a class who can *afford to buy* what you want to sell. *Write for rates and information.*

MONDEX HELIX GAS MIXER

REDUCES YOUR GASOLINE BILLS 25 TO 40 PER CENT.

Send for Free Sample Mondex Polish

THE ARISTOS CO., 250 W. 54th St., N. Y. Write for Booklet W

THE NEVERSINK COAT

The Most Remarkable Garment Ever Manufactured

A REAL NORFOLK COAT—Soft, Light and Comfortable, which can be worn in place of an ordinary coat, yet a coat in which it is

ABSOLUTELY IMPOSSIBLE TO DROWN

Write for Illustrated Booklet

American Life Saving Garment Co., 53 State St., Boston, Mass

HITCHCOCK'S

Automatic Bilge Bailer

Price $5.00 from all dealers.

AUTOMATIC BILGE BAILER CO.

119 St. Mary's St. Brookline, Mass.

Kyanize SPAR Finish

Without a doubt the toughest and most durable spar finish made

Stands Rough Weather

BOSTON VARNISH COMPANY, Everett Station, BOSTON.

MARINE MODELS

PATTERN MAKING INVENTIONS DEVELOPED, SPECIAL MACHINERY

THE. H. E. BOUCHER MFG. CO.

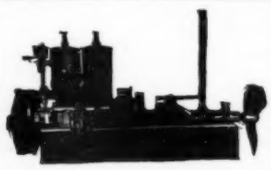
20 FULTON STREET, N. Y., U. S. A.

Why? Why? Why?

Why be out of date? Why use out of date paint? Why scrub off the bottom of your boat? Why not take advantage of new ideas? Why not be up to date? Why not buy Bridgeport Bronze Paint and never have to haul or scrub off your boat "In the good old summer time"?

Bridgeport Marine Bronze Paint Co.

Cable Address, "Laquero Bridgeport." Bridgeport, Conn.



The Brown-Collins Engine

1½—20 H.P. 1 to 4 cylinders

The Brown-Collins Gas Engine Co. Hartford, Conn

CELLO Searchlights

Guaranteed to run on six common dry batteries.

The powerful light is all in the reflector.

$10.00 to $16.00, postage paid.

Send for special circulars.

A. S. Campbell Co., 284 Commercial St., Boston, Mass.

Do You Wish the Advice of a Master Designer?

"POIRET is an artist, not a dressmaker." Thus Paris characterizes this leading authority on women's modes.

As a creator of fashions, Paul Poiret is ahead of his time, but never so far ahead as to be out of reach. Poiret's art is essentially practical. It is just this element that makes Harper's Bazar so valuable to the woman who desires to be smartly gowned.

Every issue contains page after page filled with photographs and original sketches of his charming models.

There appears each month an article from the pen of M. Poiret himself. Poiret writes under an exclusive contract and you may find his authoritative fashion suggestions only in the Bazar.

The advice of this master designer will be of inestimable help when you choose your next gown. Do not let the opportunity slip. Mail the coupon now.

It Is So Simple

to get Poiret's master designs and a big sumptuous fashion pictorial for 3 months. Enclose 25 cents with this coupon and mail today for the next three months of Harper's Bazar

Name.....

Address.....

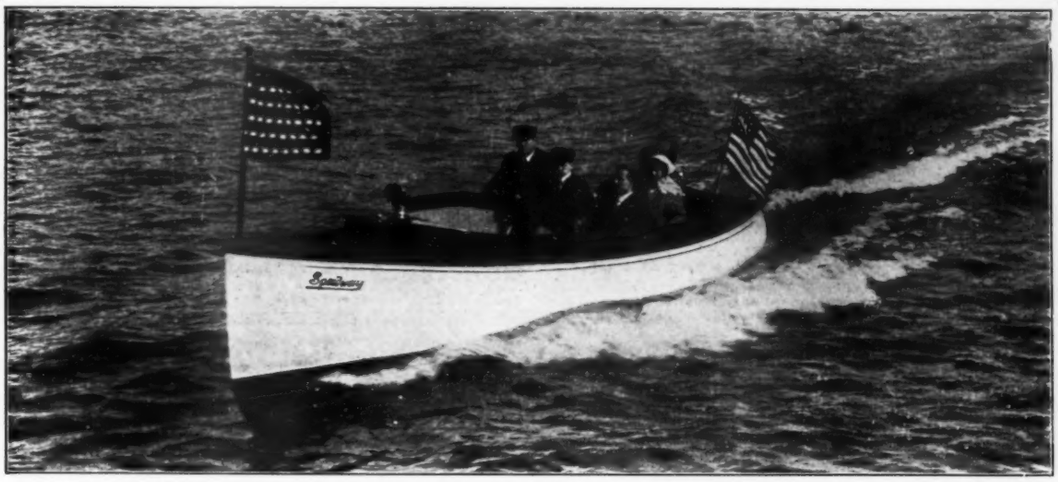
City..... M. B 1-14

Harper's Bazar

19 West 40th St. New York City

Copyright, 1914, by Harper's Bazar

Speedway Runabout



A Sensible Boat For Family Use

Safety, Simplicity, Stability and Seaworthiness Combined with Reasonable Speed

A development of 25 years experience and the building of many thousand launches.

Fine launch for Florida Service **Carried in Stock. Ready for Delivery** *Send for Circular*

Gas Engine & Power Co., and Charles L. Seabury & Co., Consolidated, Morris Heights, New York City

Look for us at New York and Chicago Motor Boat Shows

Letters Like These Come to Our Office Every Day

"The motor I received from you last week is now installed in my boat. To-day is the first good try-out I have given it, going about seven or eight miles without a miss, and starting on the first pull over. I am very much pleased with engine and outfit and with my dealings with you, and think the whole outfit is O. K.

"ARTHUR C. SHIMEL,
"Frankford, Philadelphia, Pa."

"Just a few lines to say that I am very much pleased with the 6 H. P. motor that I purchased from you this spring. It is certainly running fine and drives my boat a great deal faster than I expected.

"V. D. MOODY,
"Saranac Lake, N. Y."

"I received my engine last week and it's a 'dandy.' You are not going to get a chance to give me back my money. It runs beautifully.

"F. B. CRAVER,
"Harvey, Ill."

"Last Spring I bought a one and one-half horsepower L. A. motor for small boat, at the same time I bought a three horsepower. Now I am in love with my little L. A. and I want to sell my other engine and put one of yours in its place.

"J. M. WEST,
"Clarendon, Ark."

"Talk about a good motor—that motor of mine is better than good. Yesterday, the fourth, I won the free-for-all over all entries at the big races on this Lake.

"H. M. HARPER,
"Diamond Lake, Cassopolis, Mich."

Thousands of Motor Boat Owners Approve the Lockwood-Ash Method of Selling

L-A Marine Motors

During the past season we have sold thousands of Lockwood-Ash Motors, all by our direct-from-factory-to-user plan.

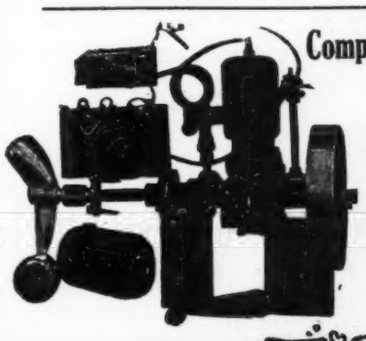
We have proved to our satisfaction and that of our customers that this is the best way to sell an honestly built marine engine.

Hundreds of our customers have written in to tell us how pleased they are, not only with the way L-A Motors run, but also with our way of doing business.

Why Pay the Dealer a Big Profit?

Remember this: when you buy an engine through a middleman you are the one that pays his profit. It is tacked right onto the price of the engine.

When you order a Lockwood-Ash motor, you know just what you are getting for your money. You try it 30 days and if it doesn't line up to all our claims for it—if it doesn't suit you in every way, all you have to do is send it back at our expense. You take no risk at all.



Complete 1½ H.P. Outfit

as shown, including ignition system, shaft and propeller,

$36.25

Freight paid, to any point east of the Rockies. West of the Rockies, $39.75.

Immediate Delivery. Six Models, 1½ to 12 H.P., $36.25 to $175.50. Complete and Ready to Run. All Guaranteed for One Year and Sold on 30 Days' Trial.

No strings to this offer, no freight to pay. Just send for any of our complete outfits, and if it doesn't delight you, send it back at our expense. The 1½ H.P. motor and complete outfit shown in illustration, only $36.25—a clear saving of at least $13.75. Post yourself on power boating, and the safest, cheapest way to buy by writing today for our latest catalog.

LOCKWOOD-ASH MOTOR CO.
132 Horton Ave.
Jackson, Mich.

30 Day Trial-A Year's Guarantee

MARINE GLUE AND HOW TO USE IT: FREE BOOKLET OF DIRECTIONS IN REGARD TO

JEFFERY'S MARINE GLUE

L. W. FERDINAND & COMPANY, 201 South Street, BOSTON, MASS., U. S. A.

K. D. Bath Boats — Fastest — Easiest to Build

Reg. Trade Mark

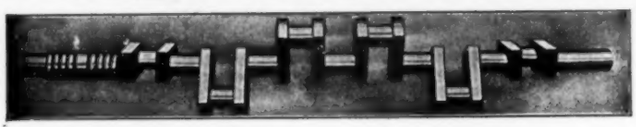
10 Per Cent. Discount

on all orders placed during this month. Thousands of successful boats have been built by amateurs from our plans, but, our full size pattern or knock downs cut out practically all difficult work. Our system, now largely copied, requires no moulds or false work, no steam bending or difficult fitting.

Send stamp for 40 page catalogue. Giving designs, prices, etc.

Bath Marine Construction Company

Henry Douglas Bacon, *Managing Owner* Washington Street, Bath, Maine



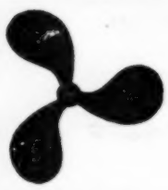
Write today for quotation of your requirements.

FINISHED CRANK SHAFTS

Let us figure on your Crank Shafts (be it one or one thousand). We manufacture them complete in our own plant—forged from the solid billet, grinding all pins and bearings and supply the finished shaft ready to be installed in the engine.

Forgings of all kinds. Die forgings in quantities from 50 and up. Carbon and Alloy Steels Heat Treated to your own specifications. Drop Forged Cranks Finished.

P. H. GILL & SONS, FORGE AND MACHINE WORKS, BROOKLYN, N. Y.



Genuine Harthan Propellers. Shaft Bearings. Universal Joints. Propeller Jacks, Shaft Couplings

ALL FIRST-CLASS GOODS MANUFACTURED BY

McFARLAND FOUNDRY & MACHINE CO., No. 1 BREUNIG AVENUE TRENTON, N. J.

REPRESENTATIVES:

BOSTON — The Lincoln-Dillaway Co. 178 Commercial St.

NEW YORK — Topping Brothers 122 Chambers St.

PHILADELPHIA — F. Vanderherchen's Sons 7 North Water St.

CANADA—Canadian Fairbanks-Morse Co., Montreal and branches.

31' Cruiser

"BOATS of QUALITY"

HIGHEST GRADE. MODERATE PRICES.

Cruisers—Day boats—Speed boats—Hydroplanes—Sail yachts and Yacht tenders built to order. Two stock models 31' Cruiser and 22½' Runabout.

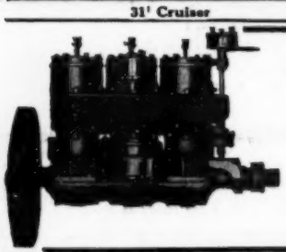
Write for booklet and see us at the N. Y. Show.

MILTON BOAT WORKS, Rye, N. Y.

Designers and Builders

5 Railways Storage Repairs Painting

22 1-2' Runabout



MORRISTOWN ENGINES

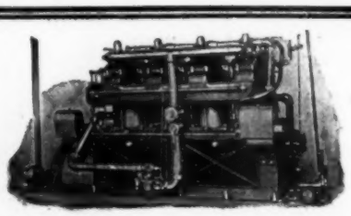
FROM 2 TO 30 H. P.

HIGH SPEED :: LIGHT WEIGHT :: HIGH GRADE

Ask for Catalogue.

WE ALSO BUILD HIGH GRADE BOATS—LARGE OR SMALL.

Morristown Boat & Engine Works :: Morristown, N. Y.



30-40 H. P. Special Engine built for U. S. Govt.

Gasoline Yachts and Engines

NOTED FOR RELIABILITY
TREGURTHA WATER TUBE BOILERS
STEAM LAUNCHES AND ENGINES
ELECTRIC LIGHT OUTFITS

MURRAY & TREGURTHA CO.

340 WEST FIRST STREET SOUTH BOSTON, MASS.

METEOR MOTOR BOAT SUPPLIES

NARRAGANSETT CHEMICAL CO. PROVIDENCE, R. I.

REMEDY IGNITION TROUBLES!

USE NICHOLSON "COIL" FILES

Specially designed for cleaning and brightening the contact points of Spark plugs, Coils, and Vibrators.

ONE DOZEN FOR TRIAL $1.50

Complete File Catalog sent FREE on request.

NICHOLSON FILE CO. Providence, R. I.

PALMER MOTORS

Run silently, start easily. As compact and efficient as the modern automobile engine, 2 and 4 cycle, 1 to 4 cylinders, 2 to 50 H. P.

PALMER BROS.

Look for us at the New York Motor Boat Show.

Dept. "M" Cos Cob, Conn.

New York: 31 E. 21st St. Providence: 123 Dyer St.
Philadelphia: 54 N. 6th St. Portland, Me.: Portland Pier
Boston: 77 Haverhill St. Baltimore: 126 Market Place

When writing to advertisers please mention MOTOR BOATING, *the National Magazine of Motor Boating.*

50 ft. x 10 ft. 6 in. Off-Shore Cruiser ARBUTUS II.

Those who are within the family of Matthews' ownership, are enjoying the luxuries to which you must remain a stranger so long as you are outside that family. Satisfactory service is the key-note of Matthews' success. Note the following letter written by one of the largest bankers in Michigan.

Lansing, Mich.

THE MATTHEWS BOAT CO., Port Clinton, Ohio.

Gentlemen:—Regarding the 50 ft. raised deck cruiser, ARBUTUS II, which you built for me this spring, it gives me great pleasure to say that on the trip up the Lakes she proved herself a most excellent sea boat, giving me the utmost confidence in her ability to weather any ordinary storm. The workmanship throughout is excellent, and her model and appearance are praised by everyone who sees her. Altogether, she is a most satisfactory craft.

Yours truly,
(Signed) E. F. COOLEY.

Eventually—A Matthews' Cruiser.

THE MATTHEWS BOAT COMPANY, PORT CLINTON, O.

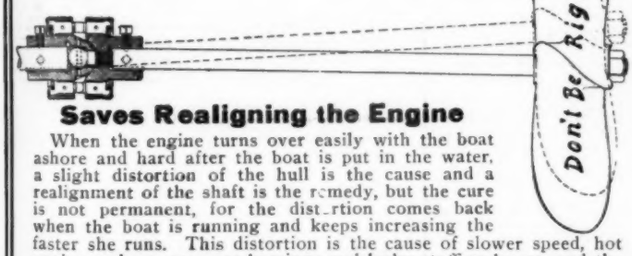
BUILDERS OF THE WORLD'S FINEST PLEASURE YACHTS

Look for us at the New York and Chicago Motor Boat Shows

MATTHEWS CRAFT — ASK AN OWNER

Takes Care of Thrust

When going "ahead" the thrust is transmitted by the propeller shaft, through the central bolt, without putting any strain on the flexible pins. When going "astern" the central bolt takes the pull of the propeller.



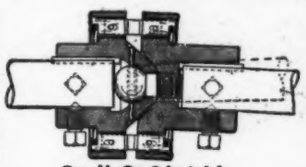
Saves Realigning the Engine

When the engine turns over easily with the boat ashore and hard after the boat is put in the water, a slight distortion of the hull is the cause and a realignment of the shaft is the remedy, but the cure is not permanent, for the distortion comes back when the boat is running and keeps increasing the faster she runs. This distortion is the cause of slower speed, hot engine and reverse gear bearings and leaky stuffing boxes, and the only permanent cure is a flexible coupling.

YOU NEED ONE ON YOUR BOAT TO SAVE TROUBLE AND EXPENSE

Cruisers Small Boats
Tow Boats Tenders
Hydroplanes Yachts

No Extra Thrust Bearing
No Leaky Stuffing Boxes
Easier to Install Engines



In ordering, give shaft size and keyway at both ends, horse-power and revolutions. At your dealer's or direct from

Don't Be Rigid!

SMITH-SERRELL CO., Inc.
General Sales Agent for
THE FRANCKE CO.
West Street Building, New York

Francke Flexible Couplings are made for any size engine at any speed. TO SELECT YOUR SIZE, select the *smallest* coupling which will take your *largest* shaft end. Then check from horse-power table to see that coupling has power enough for your engine. If not enough power—take a larger coupling covering the power.

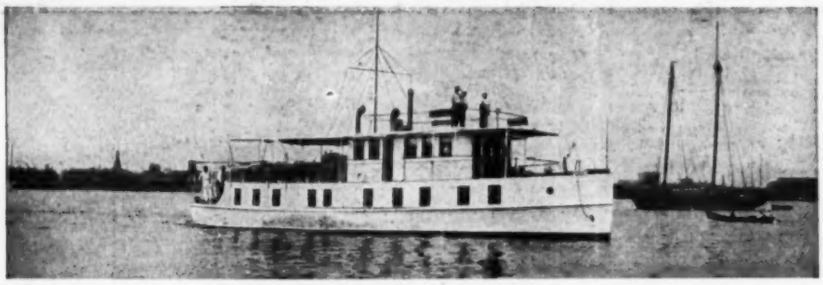
Also 5 Sizes of Lightweight Steel Hydroplane Couplings.

SPECIFY FRANCKE FLEXIBLE COUPLING

WHEN YOU BUY AN ENGINE, OR HAVE YOUR OLD ENGINE EQUIPPED WITH ONE

Size No.	Either end can be any size between these limits	Other end can be any size between these limits	Out. Dia.	Length Over All	HORSE POWER THE COUPLING WILL CARRY AT VARIOUS REVOLUTIONS 300	400	500	600	700	800	900	1000	Net price F.O.B. New Brunswick, N. J.
3½	¾ to ⅞	UP to ⅞	3½	5½	3	4	5	6	7	8	9	10	$6.75
3½A	¾ to ⅞	UP to ⅞	3½	5½	4	5⅓	6⅔	8	9⅓	10⅔	12	13⅓	8.10
4	⅞ to 1¼	UP to 1¼	4	6	6	8	10	12	14	16	18	20	9.90
4½	1⅛ to 1⅜	UP to 1⅜	4½	6½	8⅓	11	13¾	16⅔	19¼	22	24¾	27½	11.70
5	1⅛ to 1½	UP to 1½	5	6¾	11¼	15	18¾	22½	26¼	30	33¾	37½	13.50
6	1¼ to 1¾	UP to 1¾	6	7¼	13½	18	22½	27	31½	36	40½	45	16.20
6A	1¼ to 1¾	UP to 1¾	6	7¼	18	24	30	36	42	48	54	60	18.90
7	1⅜ to 2	UP to 2	7	7¾	27	36	45	54	63	72	81	90	22.50
8½	2 to 2¾	UP to 2¾	8½	10½	84	112	140	168	**ALL SIZES**				31.50
10	2¼ to 3	UP to 3	10	12	195	260	325	390	**STOCK SHIPMENT**				40.50
12	2¾ to 4	UP to 4	12	14½	270	360	450	540					54.00

"LOOK FOR US AT THE NEW YORK MOTOR BOAT SHOW"



The LODONA—an ideal type for Florida use. 77 ft. with beam of 18 ft. 6 in. Draws 33 in. Speed 11 miles per hour. Owner, Dr. Archibald Thompson.

When in Florida This Winter
Look for the
MATHIS - BUILT HOUSEBOATS

The highest point yet achieved in the design of pleasure craft for use in inland waters. Seaworthiness, shallow draught, economy in maintenance and the utmost in comfort are combined in Mathis-Built Houseboats; they possess the most desirable points of both cruiser and houseboat types with every disadvantage eliminated.

The Florida fleet this season will include: 70-ft. LUNARIA, 90-ft. EDNADA III, 70-ft. LANAI, 70-ft. COCOPOMELO, 95-ft. HILDEBRET (formerly NAHMEOKA), 70-ft. IBIS.

WRITE FOR FULL DETAILS

MATHIS YACHT BUILDING COMPANY

Specialists in 60 to 100 ft. Houseboats & Cruisers,

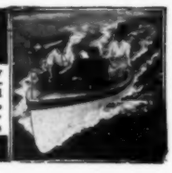
Cooper's Point CAMDEN, N. J.

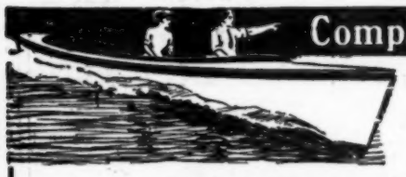
MULLINS STEEL BOATS CAN'T SINK

Built like Government Torpedo Boats, of tough, puncture-proof, galvanized steel plates, so securely joined together that a leak is impossible. The Mullins Steel Boats are *guaranteed* against puncture, leaking, waterlogging, warping, drying out, opening seams, etc. MOTORS: The Low-Victor 4-Cycle and Ferro 2-Cycle. Light, powerful, simple, can be operated by the beginner, start like automobile motors, one man control, never stall at any speed, exhaust silently under water. *Beautiful illustrated book, free.*

THE W. H. MULLINS CO., World's Largest Boat Builders, 169 Franklin St., Salem, Ohio

STEEL ROW BOATS AND CEDAR CANOES





Complete Launch With Engine Ready to Run $94.50

16, 18, 20, 23, 27, 28 and 35 footers at proportionate prices

including Family Launches, Speed Boats, Auto Boats and Hunting Cabin Cruisers. We are the world's largest Power Boat Manufacturers.

A NEW PROPOSITION TO DEMONSTRATING AGENTS

Sixty-four different models in all sizes ready to ship, equipped with the simplest motors made; start without cranking; only three moving parts; ten-year-old child can run them. Boats and engines fully guaranteed. 12,500 satisfied owners. Write to-day for large Free Illustrated Catalog.

DETROIT BOAT CO. 1147 Jefferson Ave. DETROIT, MICH.

Wicker Chairs

that are Life Preservers. The chair illustrated in this advertisement can be fitted with a life belt. These chairs are creating a sensation with the Yachting Public. Write for catalogue and full information.

WICKER-KRAFT COMPANY
15 So. Water Street, Newburgh, N. Y.

Get our 1913 Reversing Propeller Catalogue now and compare our wheel to any reverse gear. Then you will install our outfit.

WILMARTH & MORMAN CO.
1169 Monroe Ave.
GRAND RAPIDS, MICH.

ANDERSON GLASS AND STEEL SPARK-PLUG

A WINDOW to the Engine

Glass and steel welded into one solid integral body makes the Anderson absolutely the strongest and most enduring plug on the market.

Better pay $1.50 once than a dollar a dozen times. That's about the ratio of Anderson Spark Plug life, compared with ordinary plugs. ALL SIZES

ANDERSON SPARK PLUG CO. 206 NORTH HOLLIDAY ST. BALTIMORE, MD.

IF YOU WANT PERFECT IGNITION

BOSCH

Magnetos and Plugs will give it

BOSCH MAGNETO CO., 231 W. 46th Street, New York

Detroit Marine Engine

Uses Gasoline or Kerosene

Demonstrator Agent wanted in each boating community. Special wholesale price on first outfit sold. Amazing fuel injector saves HALF operating cost, gives more power, will not back-fire. Engine starts without cranking; reversible, only three moving parts.

GREATEST ENGINE BARGAIN EVER OFFERED. Money refunded if you are not satisfied. 1, 2 and 4 cyl. 2 to 50 h. p. Suitable for any boat, pleasure, commercial or racing. Join "booster" club. Send for new catalog.

Detroit Engine Works, 100 Jefferson Ave., Detroit, Mich.

NATIONAL REVERSE GEAR

$10.00 Guaranteed 5 years against breakage or defects due to defective workmanship or material. Weighs only 20 lbs. Guaranteed to hold up to 6 h. p. at 500 R.P.M. Your money and all freight charges returned if not as represented. At the price you can't afford to run your boat without a National Reverse Gear.

NATIONAL GEAR CO., 1530 Jefferson Avenue DETROIT, - - MICH.

WATKINS' SPECIAL MOTORS

3 H.P. Single Cylinder - 30 lbs.
6 H.P. Double Cylinder - 60 lbs.
12 H.P. Four Cylinder - - 100 lbs.

A strictly HIGH GRADE Motor that will give CONSTANT and EFFICIENT service. Especially adapted for CANOES and LIGHT BOATS. Aluminum base, copper water-jackets, steel shaft, bronze bearings.

THE WATKINS MOTOR CO.
524 Baymiller St. Cincinnati, Ohio

MARINE PAINTS AND SPECIALTIES

Elastic Seam—Compositions; Elastic Flat Yacht White; Elastic Gloss Yacht White; Elastic Special Bright Green Copper Paint; Elastic Special Bright Red Copper Paint and Elastic Bright Green Boottopping. Send for list of firms carrying our goods and for catalogue to

H. B. FRED KUHLS, Sole Manufacturer

Office and Works: 3rd Ave. & 23d St., Brooklyn, N. Y., U. S. A.

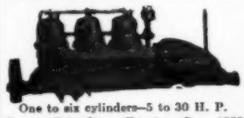
"LAWLEY BUILT"

Means the highest quality of workmanship and finish known to the fine art of boat building.
Steam, Gasoline and Sailing Yachts, Motor Boats, Tenders, Launches, Speed Boats. Heavy Duty Gasoline Motors.
Write for booklet.

GEO. LAWLEY & SON CORPORATION

Neponset, Mass., U. S. A.
Established 1866. Cable Address, "Lawley Boston"

LEARY TWIN PORT ENGINE



Has an extra or fourth portalso regulated by the travel of the piston. Two carburetors are used, and unlike the one carburetor type of engine, once regulated require no further adjusting. Kerosene piped to one carburetor and gasoline to the other makes an ideal and cheap fuel.

One to six cylinders—5 to 30 H. P.

Leary Gasolene Engine Co., 1555 Dewey Ave., Rochester, N. Y

Reliable SIMPLE Inexpensive

Ignition and lighting apparatus our specialty.
Let us know your requirements.

LEBBY ENGINEERING CO., Charleston, S. C.

THE LEECE-NEVILLE

STARTING and LIGHTING SYSTEM

Eliminates Hand Cranking—Press Button and Your Motor Starts.

THE LEECE-NEVILLE COMPANY
Cleveland, Ohio. (17)

CROWDS

The Uncle Tom's Cabin of Business

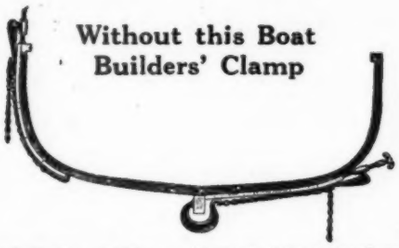
By GERALD STANLEY LEE
Everywhere *Net $1.35*

Doubleday, Page & Company
Garden City New York

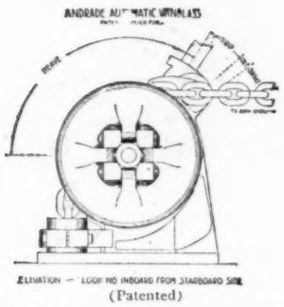
WE ARE MANUFACTURERS AND OUR PRICES PROVE IT

Factory: Grasmere, New York City, (Borough of Richmond)

Without this Boat Builders' Clamp



the boat shop of to-day would not be fully equipped, and the cost of planking and ceiling motor boats would be not only practically prohibitive, but the consummate skill of the boat builder would be severely tried. Every *practical* motor boat builder owns one—do *you?*



ELEVATION — LOOK INBOARD FROM STARBOARD SIDE

(Patented)

The Andrade Automatic Windlass

For Boats 25 Feet Long and Over

By simply moving the handle bar you can heave in, let go, or brake the chain at will. The first and only automatic windlass. Has but four moving parts. Gives one man absolute control of his ground tackle at all times and under all conditions.

Send for booklet with full information.

Kleen-Eze

Cleans Cleaner than any other cleaner cleans clean.

A combined cleaner and polisher—**All in One**—for all bright surfaces, glass, metal or porcelain.

Put up in sizes from gallon to 2 ounces.

Give it **one trial** and learn its value.

The Patterson Trap Ventilator

(Patented)

permits the free and unrestricted entrance of pure air and no wet into your boat, no matter how hard it rains or how high the sea. A perfect circulation of air through the cabin and bilge, without the discomfort of water, is to be appreciated. The Patterson accomplishes this result.

The Reliable Fire Extinguisher

was designed for especial efficiency in the extinguishing of Gasolene, Electric and Acetylene Fires; is manufactured to meet an immense demand for such an efficient device; is sold at a price within the means of every motorboatman; has proven its merit and worth times innumerable; fills Federal requirements for fire fighting equipment on motor boats—Do you own one? If not—why not?

Crescent Ball-Bearing Anchor

(Patented)

Constructed right from the right material, on the right principles. The slightest pull on cable sends shank into position. Shank has ball socket and is cast into head, doing away with need for pin to keep shank from backing out.

Can be furnished with round shank to swivel, but do not advise the use of a swivel shank anchor.

All weights, from 5 to 300 lbs.

Galvanized with Drop Forged Shank

Durkee's First Fire

and we hope the only **one** we will ever have to record, occurred on November 15, **1913**, but the close proximity of our Factory to our Warehouses has enabled us to fill all orders without delay, and we are equipped to give our customers *PROMPT DELIVERIES*—which please note.

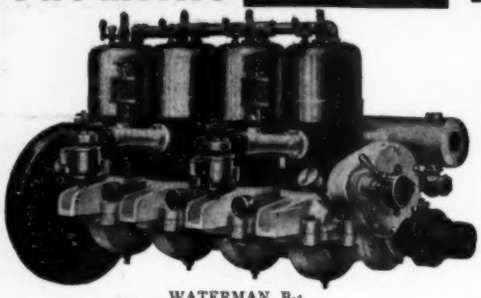
We will be glad to have you call on us at New York and Chicago Motor Boat Shows.

CHAS. D. DURKEE & CO., Inc., 2 & 3 South St., New York

The Largest Manufacturers and Distributors of Marine Hardware and Supplies in the United States

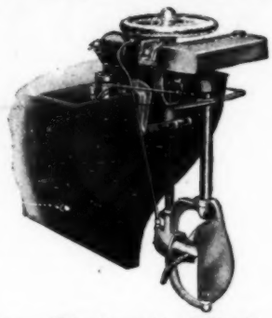
Send 30 cents in stamps to cover postage on our mammoth catalog.

Two Motors that have made The Waterman Reputation World-Famous



WATERMAN B-4
4 Cylinder, 2 Cycle, 24 H.P.

Sturdy, dependable, powerful—Waterman Motors meet the severest tests whether of rough open sea or extended speed contest. For pleasure boats, rowboats, hydroplanes, work boats—there's a Waterman for every purpose. Every one is guaranteed for life—



Waterman "Porto"

New model ready for delivery in January

This famous midget gives 2½ to 3 H. P.—weighs but 55 lbs. complete, propeller, rudder and all. Bore, 2¾ ins.; stroke, 3 ins. Copper-jacketed; under-water exhaust; steers with tiller ropes. Drives an 18-ft. rowboat 7 miles per hour. 4 hours on a gallon of gasoline. Eighth year of success—it's the original.

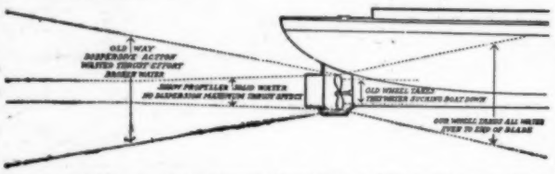
Write for catalog, showing latest models. It's free—write to-day

WATERMAN MARINE MOTOR CO., 201 Mt. Elliott Avenue, Detroit, Mich.

Canadian Fairbanks-Morse Co., Ltd., Exclusive Distributors for Canada of Outboard and Model K Motors

The "SHAW" Propeller Patented

GUARANTEES Greater Efficiency, and Gives More Speed Than Any Other Make.



is designed to secure the maximum thrust returns from every square inch of its surface—AND DOES SO.
Eliminates objectionable over-squatting of the boat's stern, and minimizes vibration.

MADE OF THE FINEST MANGANESE BRONZE PROCURABLE.
Prices and further particulars

SHAW PROPELLER CO., Board of Trade Bldg. BOSTON, MASS.

JOE'S DUPLEX DRIVE

Heavy Duty Reverse Gear

Section Showing Quadruple Gearing

Look For Us at the New York Motor Boat Show

The only heavy duty gear on the market that has same speed ahead and astern that does not depend on locked gear teeth for the forward drive.

Send for 1913 catalogue

THE SNOW & PETRELLI MFG. CO.
New Haven, Conn., U. S. A.

Manufacturers of Heavy Duty and High Speed Reversing Gears, One Way Clutches, Rear Starters, etc.

AGENTS:—J. King & Co., 10 Church Row, Limehouse, London, Eng.; L. H. Coolidge Co., Seattle, Wash.; The Canadian Motor & Supplies Co., Montreal, Canada; Gasolene Engine Equipment Co., 133 Liberty Street, New York; Chicago Boat & Engine Co., 1508 Michigan Blvd., Chicago.

VIM MOTORS

The Boat Builders' "Stand-By" —The Boat Owners' Pride

5 to 55 h. p. 3 KINDS—
SPEED REGULAR HEAVY DUTY

Strong, neat, simple—absolutely dependable. Give honest, enduring service—constant satisfaction. Win your enthusiastic confidence. Easily accessible—crank case conveniently opened from either side. Non-backfiring. Double ignition. Easy starting flywheel. Connections for rear starter. Equipment includes Paragon reverse gears. Mea Magnetos, Noxon distributor, heavy brass fittings and many other exclusive features.

1, 2, 3 and 4 CYLINDER
USE GASOLINE OR KEROSENE

Your boat, equipped with a **VIM**, will make your day or evening on the water—with the pure air, refreshing breeze—the lure of the great outdoors—one of exhilarating enjoyment and healthful recreation. Thousands in use, many of them eight or nine years old. The old boatman picks the **VIM**. Read twenty-seven reasons why in our new book, "Boating Facts."

Send for Your Copy Today

We still have a little open territory where we can use a few more good agents. Write for proposition.

VIM MOTOR COMPANY 2812 Water St., SANDUSKY, OHIO

TRADE MARK

MONARCH SPAR VARNISH

Retains its original lustre and freshness for a greater length of time than any other marine varnish—bar none. Unaffected by heat, cold, weather or atmosphere. Will not blister or crack.

Appearance and durability after long continued exposure are the only true tests of quality for a spar varnish. Any varnish that dries quickly and does not turn white under water cannot possess the required durability for outside marine use. Monarch Spar Varnish withstands the test of actual service

GILLESPIE'S MONOLAC

The best varnish made for interior marine work, cabins, woodwork, floors, etc. Furnished in colors and clear.

MONARCH BULL DOG PAINT AND VARNISH REMOVER

The only product which satisfactorily removes old lead, zinc paint, enamel and shellac. Acts almost instantaneously on ordinary work. Does not evaporate readily and cannot burn the hands.

A Valuable Book for Boatmen Free

Our Treatise on Refinishing Yachts and Motor Boats contains many valuable hints which every boatman will appreciate. Gladly sent anywhere upon request.

Send four cents postage for free Distance Finder for use on charts

Call at Our Demonstrating Booth, No. 19 Concourse, Hudson Terminal Building, New York City

CHAS. H. GILLESPIE & SONS

Established 1824 **JERSEY CITY, N. J.**

If it's not a 2-piece ring it's not a LEAK-PROOF Ring

A Head Wind and an Adverse Current

There's your power test. Then's when you want to squeeze every ounce of power out of every explosion. You can't if your compression is not perfect—compression means power. Your compression is imperfect if your piston is equipped with the old style one-piece piston rings with their openings and their poor bearing on the cylinder. They're bound to leak compression—the older they get the greater the leakage.

Put in

Piston Rings

(PATENTED)

Made of 2 pieces—have no unsealed openings—the flange of each section completely plugs the opening in the other—absolutely gas-tight. Their two-piece construction on the angle-iron principle—an exclusive and patented feature—makes them stronger than either a one-piece ring or one of more than two pieces.

Concentric instead of eccentric—this gives them equal tension on the cylinder wall.

Made of Processed Gray Iron, which retains its elasticity under the constant heating and cooling to which piston rings are subjected. Softer than the cylinder—more lasting than the motor. Made in all sizes—easily adjustable.

Install Leak-Proof Rings—and get all your power all the time.

Ask the User

Send for Free Booklet. Tells you all about Leak-Proof Piston Rings and why it will pay you to use them. Send for it—it's free.

Leak-Proof Piston Rings are sold by all up-to-date dealers, marine stores, garages and repair shops.

In use on over 150,000 Automobiles and Motor Boats.

MANUFACTURED BY

McQuay-Norris Mfg. Co., Dept. B, St. Louis, Mo.

BRANCH OFFICES

New York—53 Lincoln Sq. Ct., B'way, at 64th St.
Chicago—Suite 39, Merchants Bldg., 106 No. La Salle St.
Pittsburgh—7620 Tioga St.
San Francisco—164 Hansford Bldg.
Kansas City—1504 Grand Ave.
Los Angeles—224 Central Bldg.
Canada—W. H. Banfield & Sons, 120 Adelaide Street, West, Toronto.

If it's not a 2-piece ring it's not a LEAK-PROOF Ring

The DOMAN MARINE MOTOR

THE UTMOST IN MARINE MOTOR VALUE

DON'T judge a Marine Motor by the price alone—it isn't a safe guide to good buying. Consider *quality* in relation to cost. The few extra dollars a good engine costs may represent a big saving in the long run—and it may represent the difference between safety and disaster for your boat in a critical time.

Doman Motors are not only built of the best material that money can buy, they are equipped with those devices which are acknowledged the best of their class, including:

Bosch Magneto
Paragon Reverse Gear
Schebler Carburetor
Detroit Force Feed Lubricator

No expense nor effort is spared in making the Doman the best marine power that can be produced.

WHY A DOMAN?—ASK AN OWNER!

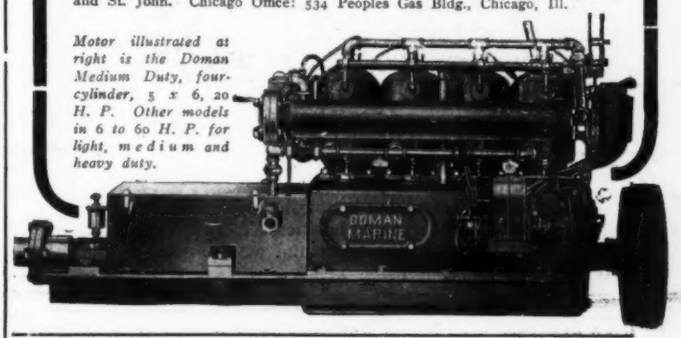
We could tell you more about Doman Motors, but you'll be more impressed by what the hundreds of owners say. So, send now for the Doman Owner's Book and the Doman Catalog—then draw your own conclusions.

THE H. C. DOMAN COMPANY

Dept C. **Oshkosh, Wis.**

Eastern Distributor—G. H. Scanlan, 202 Hudson Terminal Bldg., New York, N. Y. Western Distributor—S. V. B. Miller, 72 Marion St., Seattle, Wash. Southern Distributor—Gibbs Gas Engine Co., Jacksonville, Fla. Canadian Distributor—Canadian Fairbanks-Morse Co., Montreal, Toronto, and St. John. Chicago Office: 534 Peoples Gas Bldg., Chicago, Ill.

Motor illustrated at right is the Doman Medium Duty, four-cylinder, 5 x 6, 20 H. P. Other models in 6 to 60 H. P. for light, medium and heavy duty.



DON'T WAIT TILL AFTERWARD!

Don't hesitate about safeguarding your gasolene supply until after the accident has actually happened and you are given long leisure to think about it in a hospital ward.

Make Your Gasolene Supply Accident-Proof NOW with a

"JASCO TANK"

the one tank **that positively cannot leak.** Constructed seamless and leakless of drawn steel, thoroughly tinned, both inside and out, and carefully tested under hydraulic pressure. "Jasco Tanks" insure the safety of your boat, guard you against possible mortal injury and stop the constant drain on your purse that a leaky tank creates.

There is no finer sport in the world than motor boating, but that's no reason why you should take unnecessary chances. And gasolene, when not properly handled is a dangerous article. Keep yours under control by equipping your boat with a "Jasco Tank." Sizes and styles to fit any boat from the little river launch to the coastwise cruiser.

Get one of our free U. S. Marine Signal Codes, printed in full colors—yours for the asking.

Look for us at the New York Motor Boat Show

JANNEY, STEINMETZ & CO.

MAIN OFFICE PHILADELPHIA **NEW YORK OFFICE HUDSON TERMINAL BLDG.**

"The Automatic" FOUR CYCLE

MARINE ENGINES

Built in all sizes from 3 to 250 H. P., with one to six cylinders. The ideal engine for launch, cruiser or work-boat.

May we send you the AUTOMATIC booklet?

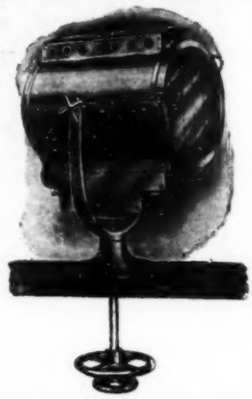
The Automatic Machine Co.
Bridgeport, Conn.

ELECTRIC SEARCHLIGHTS

Send TODAY for Catalog "A" Containing Valuable Information About Modern Lighting Plants.

We have equipped some of the finest power boats, yachts and launches afloat with Direct Connected Generating Sets. All leading ship and launch builders use them, because they are unequaled in brilliant, dependable service.

Searchlights in designs from 7 in. to 60 in. diameter.



Let us tell you about our big line.

The Carlisle & Finch Co.
261 East Clifton Avenue
CINCINNATI - - OHIO

ANDERSON ENGINE

We are now moving into our new Home on the North Branch of the Chicago River just north of Irving Park Blvd., where we will soon be in better shape than ever to take care of our steadily increasing business. Anderson Engines have steadily forged to the front and we are going to see that they stay there.

ANDERSON ENGINE CO.
(New Address) 4032 North Rockwell St., Chicago, U. S. A.

Auto Craft LAUNCHES

We carry a complete line of
ROW BOATS—FAMILY BOATS—
RUNABOUTS—CABIN CRUISERS
Write for catalog
THE CLEVELAND AUTO BOAT MFG. CO.
1087 W. 11th St., Cleveland, Ohio.

DIRIGO
COMPASSES AND BINNACLES

Avoid disaster by providing a reliable compass for that boat. A poor compass is dear at any price. It may cause the loss of your boat, perhaps your life. Dirigo compasses are made of the best materials, all permanent in character. No rubber to deteriorate. An extremely hard pivot and a first-class jewel assure accuracy and long life. The legibility of the dial, its steadiness in a seaway and the NAVY DEGREE CIRCLE to correspond with the new Government charts, are some of the features. It will give you as good service as Capt. Day received on the SEA BIRD & DETROIT. Made in seven sizes.

The DIRIGO ELECTRIC COMPASS light provides the best possible light at small cost and will not affect the compass. Operates on one dry cell. Price $2.00.

Ask your Dealer. If he can't supply you I will send Ex. paid and guarantee satisfaction or refund your money. Write today for catalog.

MANUFACTURED BY
EUGENE M. SHERMAN, Box 3, Bellevue P. O., Seattle, Wash.

Showing life-preserver cushions in cockpit of motor yacht.

WE are making a specialty this season of our life-preserver Cushions, covered with genuine Morocceline, with filling of Prime Java Kapoc, the lightest and most buoyant filling known.

To stimulate the early placing of orders, we will accept a limited number of orders for these cushions at a special price of seventy-five cents per square foot.

Cushions That Fit
Manufactured since 1845, by

Life-preserver Pillow Cushion as per cut, Eighty-five cents each, or nine dollars per dozen. Size 16 x 16. Send for booklet.

M. W. FOGG
202 FRONT STREET
NEW YORK

WARNING! COMPLY WITH THE LAW!

Equip your motor with a
HYDREX SILENCER

The most efficient silencer made. Scientifically designed on a new principle, it cools and silences the exhaust absolutely without back pressure. Approved by U. S. Government Inspector.

Don't confuse the Hydrex with old style sheet metal mufflers. It is always cool, always in working order. No odor; no clogging; nothing to wear out. Takes least room in boat. For all motors, 2 or 4 cycle.

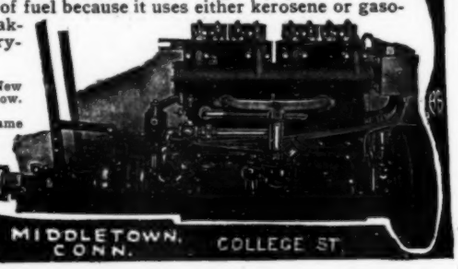
Write today for prices and our free booklet "Practical Details."

HYDREX SILENT EXHAUST WORKS
36 Church Street New York City
Chicago: Geo. B. Carpenter & Co., 436 Wells St.

FRISBIE MOTORS

1 to 6 Cylinder, 3 to 75 H. P., 4 Cycle.
High Quality, Moderate Cost

A well-balanced combination of simplicity and economy is offered you in the Frisbie motor. *Kerosene or gasoline.* The Frisbie is increasing in popularity with the rising price of fuel because it uses either kerosene or gasoline and is making good everywhere.



Look for us at the New York Motor Boat Show.

Write us for the name of our nearest agent.

MFD BY THE FRISBIE MOTOR CO. MIDDLETOWN, CONN. COLLEGE ST.

KRICE Carburetor 20% More Power

We absolutely guarantee the Krice Carburetor to use less gasoline—give better control and 20% more power. Your money back if it doesn't.

The only sure way to know that you are getting all the power from your engine is to try a Krice Carburetor. Write today for literature.

KRICE CARBURETOR CO.
1201 Oakland Ave., Detroit, Mich.

VALLEY BOATS AT THE NEW YORK and CHICAGO MOTOR BOAT SHOWS

New 19 ft. x 5 ft. Runabout
Powered with 12 H. P. Kermath Motor. Speed 16 Miles.

We build Speed and Family Runabouts, Detachable Motor Rowboats, Cruisers, Day Cruisers.

Our Hydroplanes won many 1913 races

Write for Information

VALLEY BOAT & ENGINE CO., 608 Hess St., SAGINAW, MICH.

MOTOR BOAT TOPS

Something new and classy.
Different from the tops usually found on the market in point of *Material, Style and Finish.*
Send at once for our catalog of *Motor Boat Tops, Life Preserver Pillows, Cushions, etc.*

THE C. Z. KROH MFG. CO.
1213 JACKSON AVE. TOLEDO, OHIO

MICHIGAN STANDS FOR QUALITY

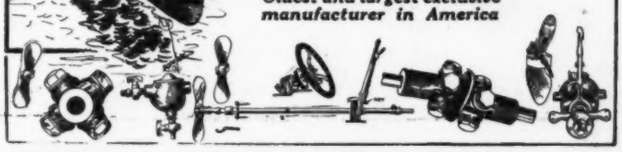
Propellers, Reverse Gears and Marine Hardware

The speed of your boat depends upon the propeller; we can increase your speed. Also propellers for towing, work boats, launches and cruisers. Our Reversible propeller is world renowned.

Multiple disc reverse gears, automobile steering wheels, universal joints and hundreds of other articles for motor boats. Large catalog sent free.

MICHIGAN WHEEL CO.
1112 Monroe Ave. Grand Rapids, Mich.
Eastern Agent, Oluf Mikkelsen, 69 Courtlandt St., New York City.

Oldest and largest exclusive manufacturer in America



A NEW PRIMING COCK

Will Not Leak, Stick, nor Seize

Will Grind in Instantly

Cheaper than the troublesome old kind

MADE BY
MORGAN MFG. COMPANY
JOHN ST. NEWPORT, R. I.

Which is a guarantee of service and quality

M'n'f'rs of Morgan's Hose Clamps and Utility Tools

Tools and Fastenings for Boat Building

WE CARRY A COMPLETE LINE FOR IMMEDIATE DELIVERY

Galvanized and Brass Bolts and Screws
Galvanized and Copper Nails, Rivets, Plugs, Glue, Cements, Etc.

Send 8c for Catalogue

A. S. MORSS CO.
43 High Street Boston, Mass.

Light Your Boat By Electricity and

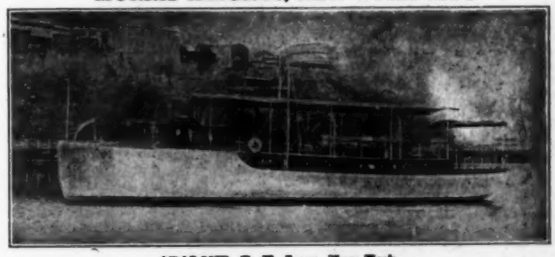
"SMILE" LIGHTING SYSTEMS are made for all sizes of power boats and yachts. They are the ideal of electric lighting outfits for boats. Right in price; perfect in results.

Write today for 1914 catalog and prices

R. S. MILLS, 136 Liberty Street, New York City

New York Yacht, Launch & Engine Co.

MORRIS HEIGHTS, NEW YORK CITY



ABALONE, E. H. Lyon, New York.

Builders of
20th CENTURY MOTORS
12 H. P., 2 cylinder, to 100 H. P., 6 cylinder
Send for catalogue

Builders of
YACHTS
of all description
Let us figure on your new boat

THE peculiar fire danger on motor boats can be overcome in only one way—by the

Pyrene

FIRE EXTINGUISHER

Pyrene is designed for the seemingly inaccessible gasoline or oil fire.

Approved by the United States Steamboat Inspection Service.
Included in the lists of approved fire appliances issued by the National Board of Fire Underwriters.

WRITE FOR BOOKLET

PYRENE MANUFACTURING COMPANY, 1358 BROADWAY NEW YORK CITY

Alton	Chicago	Duluth	New Orleans	Richmond
Atlanta	Cincinnati	Honolulu	Norfolk	St. Louis
Baltimore	Cleveland	Jacksonville	Oklahoma City	St. Paul
Boston	Dayton	Louisville	Philadelphia	Salt Lake City
Bridgeport	Denver	Memphis	Phoenix	San Antonio
Buffalo	Detroit	Milwaukee	Pittsburgh	York, Neb.

PACIFIC COAST DISTRIBUTORS: GORHAM ENGINEERING CO., San Francisco, Los Angeles, Seattle
Distributors for Great Britain and the Continent: The Pyrene Co., 29A Charing Cross Road, London, W.C.

BE YOUR OWN BOAT BUILDER

or let us build it for you with a small additional expense. Our complete, up-to-date factory reduces the cost of production to a minimum. We build all sizes, from 9 ft. Dinghy to 60 ft. Cruiser. This illustration represents one of our latest creations. Will furnish this with or without engine installed. Should you have some

spare time, we would advise you to send for our frames and put them together yourself and thereby save 75% of cost. The illustration of frame applies to our models from 18 to 40 ft. cruisers. Other special designs submitted if desired. Send for further information and catalog and special quotations.

Pioneer Boat & Pattern Works, Wharf 15, Bay City, Mich.

Mr. Manufacturer:—Are you one of the few not using

STAR THRUST BALL BEARINGS

in your Motors? If you are, you are not receiving the best results. Send us your Blue Prints.

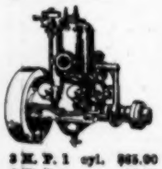
The Star Ball Retainer Company

Lancaster, Pa.

Toledo

Marine Motors

Low Priced. High Quality



Would you believe the man who spent his money for one? Then let us send you the evidence.

The Toledo two-cycle, two-port, marine motors that we sold years ago are still giving excellent service. No other proof is so thoroughly convincing of the high quality of our engines.

When price is considered comparatively, it is lower than other makes. The essential features are all to be found in the Toledo motors. Nothing has been left out that would add convenience, power and reliability to the motor, and all fittings are standard size, so that the motor can be installed or taken out and supplies obtained at any hardware store. No special tools are necessary to install or take down the Toledo Marine Motor. This is a decided advantage.

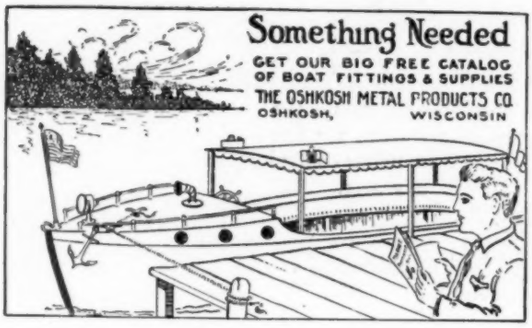
3 H. P. 1	cyl.	$65.00
6 H. P. 1	"	84.00
6 H. P. 2	"	125.00
12 H. P. 2	"	160.00
18 H. P. 3	"	230.00

Write today for catalog "W."

We still have some open territory where we could use a few good agents. If interested ask for proposition.

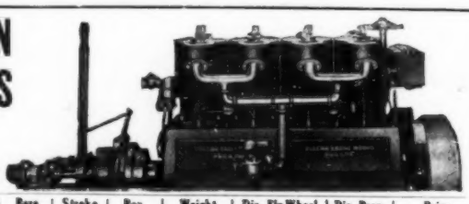
UNIVERSAL MACHINE CO.

1600 Hicks St. **Bowling Green, O.**



VULCAN ENGINES

Gasolene — or — Kerosene



H.P.	No. of Cyl.	Bore	Stroke	Rev.	Weight	Dia. Fly Wheel	Dia. Prop.	Price
4	1	4¾	6	500	300	18	18	$ 145.00
5	1	5¼	6½	500	375	20	20	$ 190.00
7½	1	6¼	7¼	450	450	21	22	$ 220.00
8	2	4¾	6	550	650	18	21	$ 340.00
10	2	5¼	7	475	900	20	24	$ 400.00
15	2	6¼	7	475	1,050	21	26	$ 520.00
18	4	4¾	6	550	900	18	24	$ 570.00
20	4	5¼	7	475	1,200	20	26	$ 700.00
22	4	5½	8½	425	1,850	23	30	$ 750.00
30	4	6¼	7	450	2,000	21	30	$ 940.00
35	3	7½	8½	425	2,500	23	34	$1170.00
40	6	5¼	7	550	1,800	20	28	$1050.00
45	4	7½	8½	425	3,400	28	36	$1500.00
56	3	8¾	10½	400	4,200	26	38	$1900.00
70	6	7½	8½	425	4,500	23	40	$2250.00
75	4	8¾	10½	400	6,000	26	42	$2400.00

VULCAN ENGINE WORKS, 1827 Bainbridge St., Philadelphia, Pa.

SPECIAL OFFER

We have a Special Offer of great interest to every motor boatman or yacht owner in the country.

TRIMOUNT ROTARY POWER WHISTLE

A high class signal for all sizes and classes of boats, including two whistles, fog horn and bronze air compressor.

This Special Offer is for immediate acceptance only. Write today for full information

N.Y. Office 303-E. Hudson Terminal Bldg.
PAUL D. LE VENESS, Mgr.

TRIMOUNT ROTARY POWER CO. 152 PEARL ST., BOSTON, MASS.

Do You Wish to Save Money?

Compare these prices with what you would pay elsewhere and see what you will save by purchasing from us

Set of two galv. Frosnal Glass lights for Class 1	$2.30	3 x 12" Canvas Fenders	.25
Set of four galv. Frosnal Glass lights for Class 2	4.00	Automatic Boat Drainers	3.50
Set of four galv. Frosnal Glass lights for Class 3	6.00	Pol. brass Bow Chocks, per pair	.32
Schebler Carburetor, 1" size	7.50	Pol. brass Stern Chocks	.14
Polished brass Check Valve, 1"	.90	Power Bilge Pumps	3.50
Finished brass 3" Bell	1.20	Spark and Throttle Controls	1.12
Polished brass Bilge Pumps	1.25	1" Deck Plates	.16
Polished tin Fog Horns, 7½"	.25	1" Stuffing Box	.65
Polished brass Electric Horn	3.60	1" Stern Bearing	.60
Polished brass Two-tone Horn	1.20	Galv. Steering Wheel, 12"	.80
Life preservers, government inspected	.80	Pol. brass Steering Wheel	1.15
Mica Jump Spark Plugs, each	.25	Switches	.12
Jump Spark Coils, each	3.60	10" Stillson Wrenches	.50
1" pol. brass Flush Flag Pole Sockets, per pair	.38	Nickel-plated Comb. Pliers	.20
		Reverse Gears	11.00
		Magnetos	7.50

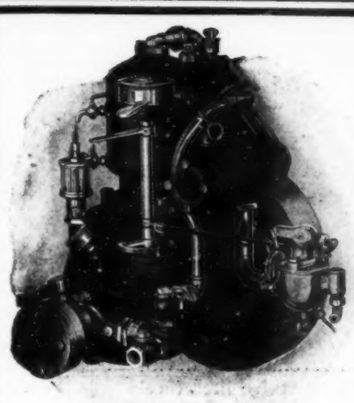
Free for the asking. Send for our highly illustrated catalogue.

UNIVERSAL MOTOR BOAT SUPPLY CO.

Office: 287 Broadway NEW YORK CITY

WAREHOUSES: ATLANTIC HIGHLANDS, N. J.

Distributors for Kingston Specialties, Wheeler & Schebler. Agent for Wonder Mfg. Co., Russell Elec. Co., Pyke Automatic Boat Drainers. Glen Gear Co.



This 3 H.P. light duty engine is one of the few small, but well-built four-cycle marine engines on the American market.

Most engines of this horsepower have been of the two-cycle type, but the increased cost of fuel and the more exacting demands of the discriminating buyer account for the rapid replacement of the two-cycle by high-grade four-cycle engines such as the

REGAL ENGINE

These small engines, as well as all the other light, medium and heavy-duty Regal engines, are built to operate upon kerosene or coal oil if it is desired. There is no difference in price over the gasoline engine.

Regal Gasoline Engine Co.

74 W. Pearl St. **Coldwater, Mich.**

PUT THE

POWER OF NIAGARA

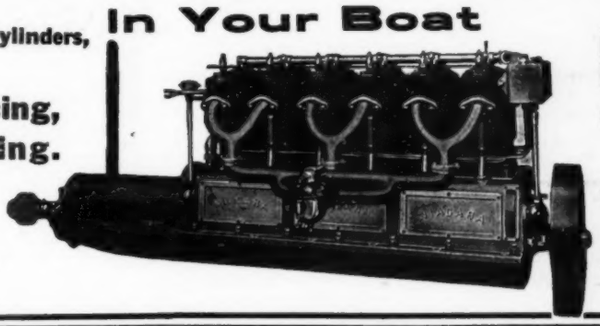
In Your Boat

Four Cycle, in 2, 4 and 6 Cylinders, 5 to 100 H. P.

For Cruising, Racing, Fishing, Freighting.

75% of Niagara Sales due to Satisfactory Service.

Niagara Motors will Operate on Kerosene or Gasoline.



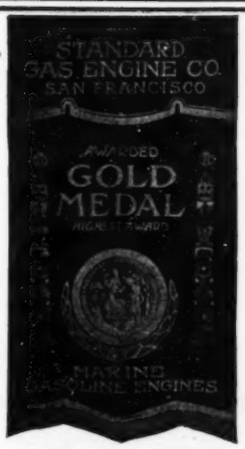
Highest Quality at Moderate Price.

In Service Nearly Ten Years and Not a Dissatisfied Customer.

We can save you money and much annoyance. Get Catalog.

Niagara Motors & Mfg. Co., Inc.

194-204 Niagara Boulevard - Dunkirk, N. Y.



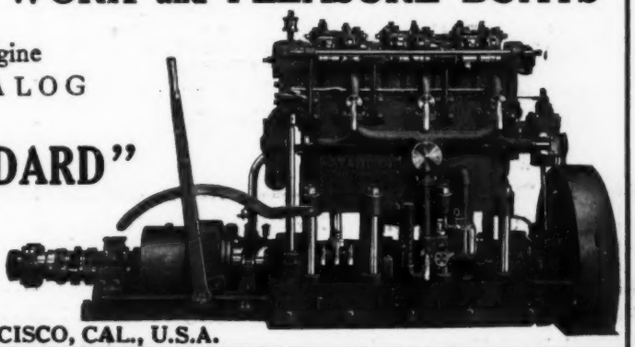
ALASKA-YUKON EXPOSITION

HEAVY DUTY MARINE ENGINES

Installed in the Finest WORK and PLEASURE BOATS

Before purchasing an Engine
SEND FOR CATALOG
of the

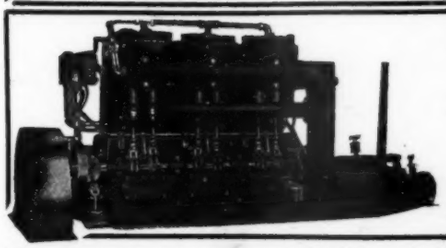
ORIGINAL "STANDARD"



Standard Gas Engine Co.

Incorporated June 4, 1901

110 CALIFORNIA ST., SAN FRANCISCO, CAL., U.S.A.



"WOLVERINE"

The Motor with the Bore and Stroke

HEAVY DUTY MARINE ENGINES

FOR WORK OR PLEASURE

Catalog No. 53. Your request brings it.

WOLVERINE MOTOR WORKS

BRIDGEPORT, CONN., U. S. A.

(Formerly Grand Rapids, Mich.)

"Look for us at the New York Motor Boat Show."

House boat "Bilouan," two 75 H.P. "Wolverine" Engines

WISCONSIN MACHINERY & MFG. CO., Milwaukee, Wis.

Gentlemen:—

HELP. I AM TIRED OF ROWING

MAIL THIS TO-DAY

(Sign Here).....

.....

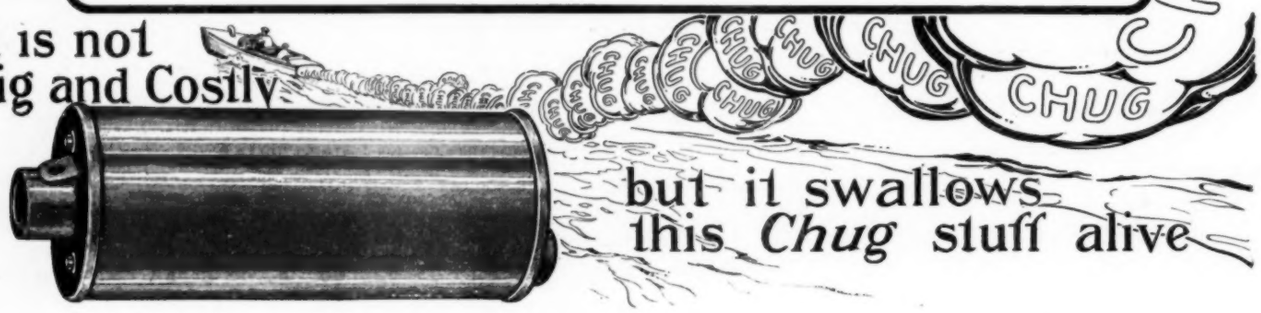
MAXIM MOTOR BOAT SILENCER

To enjoy life you own a motor boat. To enjoy a motor boat you should have a Maxim Silencer. The same principle that eliminates the crack of a rifle, annihilates the ear and nerve killing racket of your motor boat. ¶ The Maxim Silencer is not even an outgrowth of the muffler idea. As one man put it, "The Maxim Motor Boat Silencer is a *NOISE TRAP*—not merely a gas trap." See the difference! One stifles the noise but at the same time slows down your engine. The other—*THE SILENCER*—is light and clog proof. There's no such thing as back pressure. ¶ It's the most revolutionary device motor boating has ever known. A demonstration will surprise you. ¶ Send for descriptive literature, mentioning diameter and number of cylinders and also size of exhaust outlet.

WILCOX, CRITTENDEN & CO.
INCORPORATED
4 SO. MAIN ST., MIDDLETOWN, CONN.

Sole Manufacturers of the Maxim Marine Silencer
World's Largest Manufacturers of Marine Hardware

CANADIAN FAIRBANKS-MORSE CO., Ltd., Exclusive Distributors for Canada

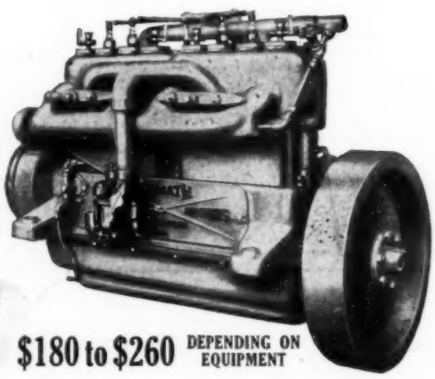


AMERICA'S STANDARD 12-H.P. MARINE MOTOR

KERMATH

Europe has led the World in engine design for years and today the most advanced practices in engineering are copies of European designers work. There has not been a 2 cycle engine brought on the market in Europe in the last five years, as the world's best engineers have come to know that the 4 cycle engine is the type from which the best results can be obtained, such as:

Fuel Consumption (about ½). Control (Perfect Throttling). Starting (Practically Positive). Lack of Vibration (Absent in a 4 Cylinder). Freedom from Burned Out Bearings (Due to Perfect Lubrication and no Gas in Base) and thorough dependability in every way, theoretically and practically.



The 4 cycle engine is right and the Kermath has solved the price problem. By the production of *quantities* of *one size* we have maintained a *quality* second to no other marine motor *at any price* and have developed in our 1914 engine the height of 12 H.P. perfection. To own a Kermath is to know the Supreme pleasure to be obtained from a good Motor Boat.

The 1914 is simply a beauty and our catalogue tells all about Send for one. Its yours on request.

$180 to $260 DEPENDING ON EQUIPMENT

KERMATH MFG. CO., Dept 2, Detroit, Mich.

(Providence, from a Flying Boat)

The World Is a Tiny Place

if you own a

CURTISS FLYING BOAT

When you cruise in a flying boat you see the country in true perspective.

It brings Jacksonville within three easy stages of New York City. One day's trip if you hurry.

Without strain or discomfort you can make the world's fastest hydroplane look as if it is going backwards.

Easier to manage than a fast motor car and Safer than any other fast conveyance.

These statements are supported by the facts. The Curtiss Flying Boat is endorsed by dozens of prominent men.

Used every day in England, Germany, France, Russia, Italy, Austria, Japan, Brazil and the U. S. A.

Illustrated Booklets telling a lot about Curtiss Flying Boats sent free on request.

Are you interested in our vacation training camps? May we tell you about them?

The CURTISS AEROPLANE CO.
33 Lake Street Hammondsport, N. Y.

EDISON BSCO PRIMARY BATTERY

The Standard Closed Circuit Cell

EDISON-BSCO Type 206 Cell, 200 Ampere Hours Capacity.

The length of service which a set of Edison Primary Cells will give is governed by amount of current taken by the spark coil, and frequency with which the boat is used. With dry cells the time factor must be taken into consideration.

The Edison Cells lose energy only through current flowing to the external circuit, there being no local action or internal discharge to waste the active material, such as shortens the life of many cells. Dry cells deteriorate while standing on open circuit on account of drying out; thus their entire capacity is rarely delivered to the circuit.

It is, therefore, not difficult to understand why **EDISON**-BSCO ignition cells are often in service for two or more years, and added to the convenience of using a battery that does not require frequent attention, there is the extreme simplicity of an Edison Sparking Outfit only one connection to a cell, no moving mechanical parts and the acme of dependability, **EDISON**-BSCO cells being universally used where reliability is essential and the service rigorous.

EDISON - BSCO Complete Renewal, Showing the All-in-One Assembled Element.

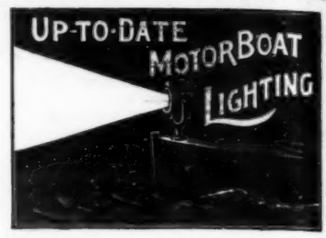
Catalog on request

The Cheapest Form of Battery Energy

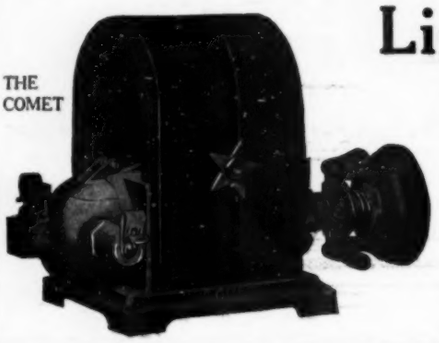
Thomas A. Edison

THOMAS A. EDISON, INC.
261 Lakeside Avenue, Orange, N. J.

HENRICKS Magnetos and Lighting Outfits



THE COMET



are guaranteed to be highly
POWERFUL, DURABLE and **RELIABLE**

Regarding the popularity of the "Henricks" we state that there are **50,000 Now in Service!**

Any user will be glad to explain their superiority.

Write us or see your dealer.

HENRICKS NOVELTY COMPANY
1255 St. Paul Street :: :: INDIANAPOLIS, IND.

HYDE TURBINE TYPE PROPELLERS

Were used with success on

OREGON KID

Making over 48 miles per hour at Astoria Races

THE IRISH PNEUMATIC CLUTCH CONTROL

The latest and best method of controlling the engine from the steering stand or station, using air from the whistle tank.

HYDE WINDLASS CO., :: :: :: Bath, Me.

Look us up at the New York Motor Boat Show

The MIGHTY MERCURY Drove GUNFIRE Jr.

This is the Mighty Mercury 52 H.P. Special which drove the 20-ft. hydroplane Gunfire Jr., through its long list of records during 1912—one of the most successful racing seasons ever enjoyed by any boat or its owner. Ten firsts, one second, one fourth (broken propeller), and several records in hydroplane and displacement classes and free-for-all races.

The 52 H.P. Special has 5¼" bore, by 5" stroke. For power, flexibility, durability, smoothness and reliability, it is ideal for racers, cruisers and work boats.

Die cast bearings and every bearing surface is uniformly larger than the corresponding bearing of any other motor. 2¾" valves, both inlet and exhaust. Capacious water jacket.

Reverse gear bed cast integral, with lower half of crank case. Paragon special reverse gear, with positive reverse lever lock, eliminating ringing and rattling noises.

Positive lubrication to every friction point. Becker imported Hollow steel wrist pins.

Write today for the Mercury Book.

Two New Models. 6½-in. Bore x 7-in. Stroke.

4 Cylinder—125 Horsepower. 8 Cylinder—250 Horsepower

MERCURY MOTOR CO., Produce Exchange New York

NEW NIAGARA DESIGNS

NOTE THESE IMPROVEMENTS

No noise, no vibration, electric starters, electric lights, foot-pedal reverse control, plate-glass windshield, self-filling oiler, and many other little conveniences designed for your comfort, not found on the average boat.

CRUISERS RUNABOUTS SPEED BOATS

Send for Plans and Specifications

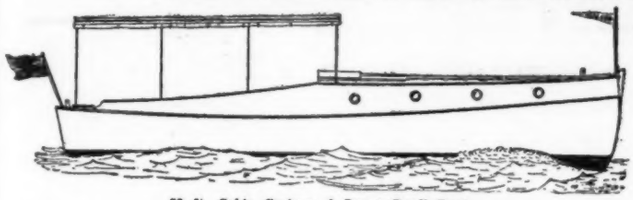
NIAGARA K D BOAT FRAMES

offer the amateur builder an absolutely certain means of obtaining a high grade boat at reduced cost. Each part is guaranteed to fit.

Send 5 cents for 48-page illustrated book of designs

NIAGARA MOTOR BOAT CO.
210 SWEENEY STREET NORTH TONAWANDA, N. Y.

DON'T BUY A BOAT UNTIL YOU HAVE SEEN THE EXHIBIT OF
THE CAPE COD POWER DORY CO., at Madison Square Garden, New York City, Jan. 31-Feb. 7
But send for literature on Cruiser, 20-Ft. Special Dory, and Rowing Skiffs which will be exhibited.



28 ft. Cabin Cruiser—A Large Small Boat.

GURNEY DESIGN WITH TOILET, SINK, OIL STOVE, ICE BOX, SLEEPING ACCOMMODATIONS, RUNNING FRESH WATER, TOOL, DISH & CLOTHES LOCKERS. OVER 10 FT. COCKPIT.

Our leader 20 ft. special power dory, the safest little family boat built. Will stand the ocean waters.

Other Boats We Build: U. S. Life Saving Dories, 16-Ft. Shallow Draft Motor Boat, Low Price Sportsman's Fishing Boat

BUILT BY **CAPE COD POWER DORY CO.** 455 Main St., Wareham, Mass.

THE JOHNSON MARINE REVERSE GEAR

IN A NEW TYPE FOR 1914, FROM 1 TO 40 H. P.
MODELS "E" AND "F"

COMPACT AND NEAT

ENCASED BUT ACCESSIBLE

TELLS THE STORY

SILENT AND POWERFUL

JOHNSON AND QUALITY

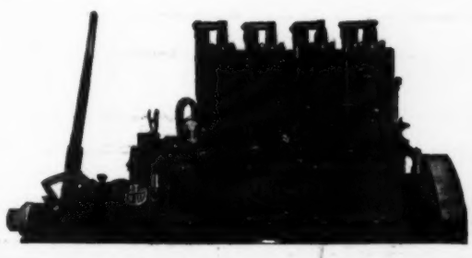
Guaranteed for ONE YEAR

THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN

RALACO
THE SILENT SIMPLIFIED ENGINE

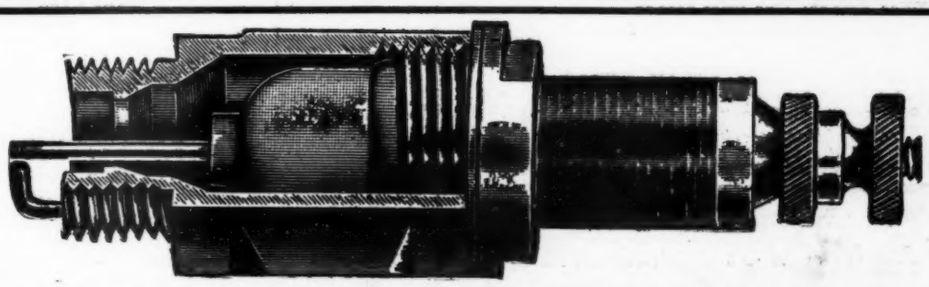
The great number of satisfied owners of *RALACO Engines* is rapidly increasing, owing to th general satisfaction given by ALL of them.

High grade in the extreme, clean, cool, quiet and dependable. A fuel consumption of one-tenth of a gallon of gasoline per horse power hour.



THE S. M. JONES COMPANY
Main Office and Factory: 616 SEGUR AVE., TOLEDO, O.
New York Office, 136 Liberty Street.
AGENTS:
Wm. N. Jarvis & Co., The Bourse, Philadelphia, Pa.
A. W. LePage Gasoline Eng. & Supply Co., Vancouver, B. C.

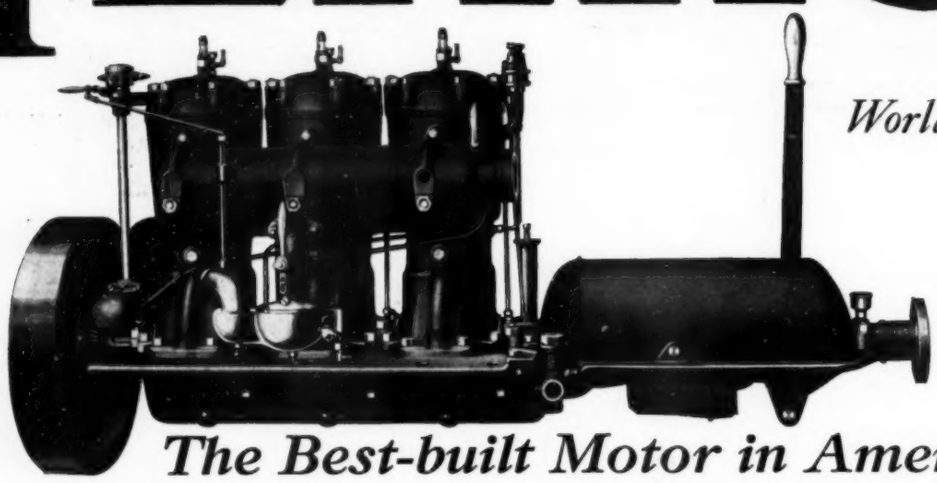
COMET



SOOTLESS

COMET AND SOOTLESS SPARK PLUGS
MANUFACTURED BY
The Oakes & Dow Co., 15 Chardon St., Boston, Mass.

FERRO



The World's Standard

For Pleasure and Profit

The Best-built Motor in America

Backed by a World-wide SALES and SERVICE Organization equaled by none.

Users Say So—Sales Prove It!

The Ferro Unit Power Plant is built in eleven sizes—3 to 25 H.P.—$60 to $500. Send for Illustrated Catalog

THE FERRO MACHINE & FOUNDRY CO.

The Largest Marine Engine Builders in the World.

Main Office and Plant, 36 Hubbard Avenue and East 66th Street, Cleveland, Ohio, U.S.A.

MOTORS FOR MARINE, AUTOMOBILE and STATIONARY PURPOSES

25c and 50c on the dollar

Consisting of the famous

Herschell-Spillman—6 cyl., 4 cycle, 50 H. P., 4" bore x 5" stroke. Regular Price, $600.00; Our Price, $275.00. 4 cyl., 4 cycle, 40 H. P., 5½" bore x 5¼" stroke. Regular Price, $550.00; Our Price, $275.00.

Lyons-Atlas—4 cylinder, 4 cycle, 38 H. P., 4½" bore, 5" stroke. Regular Price, $600.00; Our Price $165.00.

Poss—4 cylinder, 4 cycle, 25 H. P., 3½" bore, 4¾" stroke Regular Price, $400.00; Our Price, $140.00.

Buda—4 cylinder, 4 cycle, 35-8 H. P., 4½" bore, 5" stroke Regular Price, $700.00; Our Price $200.00.

Reliance—3 cylinder, 2 cycle, 15-18 H. P., 5⅛" bore, 5" stroke Regular Price, $400.00; Our Price, $95.00.

Carburetors—Schebler, Stromberg, Fletcher, Rayfield, Kingston, and in fact all makes of carburetors. Price, $6.50 to $12.50 each—about ⅓ of Regular Price.

Magnetos—All makes of magnetos, including Bosch, Splitdorf, Remy, Kurtz and Pittsfield, ⅓ off. Splitdorf: 4 cylinder, with coil, $25.00, 2 cylinder, $15.00. Jacobson & Brandon: one cylinder, $6.50. Bosch: 4 cylinder, $35.00.

We are headquarters for: Ball Bearings, Batteries, Self Starters, Cable, Clocks, Switches, Volt-meters, Lighting Systems, Vibrators, Coils, Reverse Gears, Generators—all kinds of Warning Signals, Lamps, Oils, Greases, all kinds of Tools, Spark Plugs, Gas Tanks, Gasoline Torches and Gasoline Strainers. SEND FOR OUR GREAT "PRICE WRECKER" and save from 50 to 75% on all your purchases.

TIMES SQUARE AUTOMOBILE CO.

56th Street and Broadway, New York

1210 Michigan Avenue, Chicago

E. J. Willis Co.

85 Chambers St., New York

ESTABLISHED 20 YEARS

"1914"

Catalogue "B" Motor Boat Fittings and Equipments NOW READY Sent Free

It is larger and more complete than ever, filled with necessities at prices economical.

Our complete Catalogue "G" of Fishing Tackle and Anglers Supplies mailed on request.

Complete Stock Quick Deliveries

New Electric Lighting Outfit for Cabin and Sailing.

Everything needed for the Motor Boat

Packard CABLE

Put Packard Cable in your boat when you rewire it. You won't have to rewire again next year. Packard Cable is made to resist heat, water and oils for years. Send for sample, folder and price list, mentioning name of your dealer.

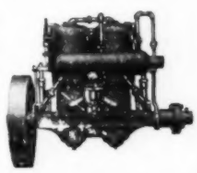
A Book You Need

Makes you familiar with every electrical device on your boat. Contains 48 pages of real information about generators, storage and dry cell batteries, separate lighting sets, wiring, high and low tension ignition and U. S. Marine regulations, including lights, life preservers, fire extinguishing apparatus, etc. Sent postpaid for 25 cents to cover cost of printing. Contains no advertising.

The Packard Electric Co.
Dept. O Warren, O.

(73)

KENNEBEC
Gasoline Engines



If you are one who demands full service and reliability from a marine engine, you cannot be better satisfied than by getting a Kennebec. This is an engine which will give you perfect satisfaction for years to come. It will run day after day, year in and year out, with the greatest economy and the least trouble, and you can risk your life on it if necessary, because it won't fail you.

The Kennebec Engine gives thirty to forty per cent. more horse power than its rating. We allow them ample bore and stroke and rate them honestly at moderate speeds, because an engine designed for hard, continuous service like the Kennebec must run at moderate speed if it is to have durability and give permanent satisfaction. We build power into these motors and it has got to come out.

The Kennebec is sturdy and reliable enough for the fisherman who must use it every day, and handsome enough for the finest pleasure boats. Every engine user wants Durability, Economy and Easy Accessibility no matter what type of service he requires. Ask any fisherman what he thinks of the Kennebec. If he has ever seen one working, we know what his answer will be.

14 Models. 2 to 16 H. P. 1 to 3 Cylinders. Two Cycle.

WRITE TODAY FOR CATALOG

TORREY ROLLER BUSHING WORKS
BATH, MAINE, U. S. A.

Why Do Almost All Experienced Boat-Builders Use

WHITE CEDAR?

Because it has that much desired and needed combination—strength and light weight.

Because the great variety of lengths in which it is stocked reduces waste to the minimum.

Because it is inexpensive, when bought right—that is, when bought where you are assured of the best prices obtainable and immediate deliveries, where quality is uniform and the extensive stock enables you to select the lengths that suit you best.

Beyond all question, the Boat Wood to use is White Cedar. Equally beyond question, the firm from whom you can buy it to your best advantage is

WM. P. YOUNGS & BROS.
the World's Greatest White Cedar House

We specialize in White Cedar, because of our conviction, based upon years of experience, that this is the ideal Boat Wood for general use. Fifty years in the business have established us in a position of remarkable strength. Our constant close contact with the sources of supply, our early advance information of trade conditions, our ample capital and extensive stock, are your assurances that your interests will be protected in every detail.

We do not by any means confine ourselves to White Cedar, but carry every variety of wood used in boat-building — White Oak for bending, Quartered White Oak, Long Leaf Yellow Pine, and especially

Hackmatack Knees and Mahogany

The demand for the former has been growing very rapidly, owing to the recognition throughout the trade of the uniform high grade of our Hackmatack Knees. As to Mahogany—we have at present a stock which we believe to be absolutely unequaled in quality.

You cannot overestimate the importance of dealing with a firm of unquestioned reliability. It is a guarantee of price protection as well as of quality, prompt delivery, etc. That our superior facilities and resources are recognized generally was shown when the U. S. Government placed this firm in charge of the relief work for the Messina earthquake sufferers—one of the greatest emergency lumber contracts in the history of the world.

For prices and all other information concerning Woods—especially Boat Woods—'phone or write

WM. P. YOUNGS & BROS.
First Avenue and 35th Street, New York

Established over 50 years. Telephone, 2710 Murray Hill.

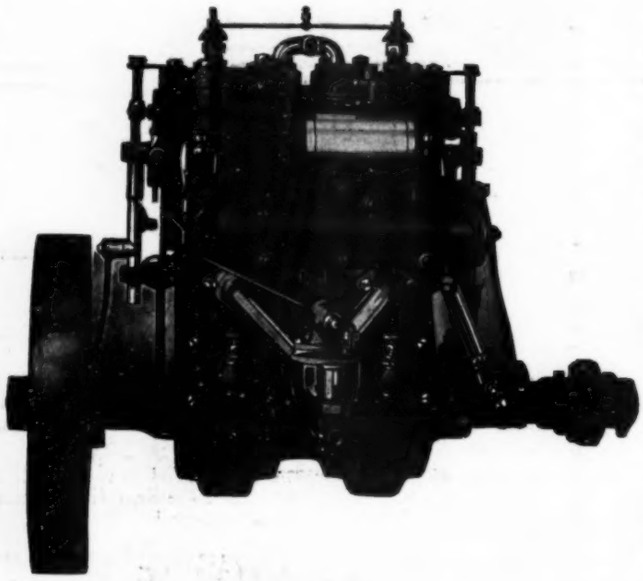
The Most One

Bridgeport

"THE MOTOR THAT MOTES"

Could Wish For

The illustration shows our 1913 Medium Heavy Duty Type Gasoline Motor, admittedly the most highly perfected of its type. The general design embodies a number of exclusive features which have made the Bridgeport famous as a practical working outfit, from the viewpoint of the operator.



All models are fitted with our Bridgeport Vapor Rectifier, which prevents back-firing, provides reliable service at all speeds, and economical fuel consumption.

Our Kerosene Motors, fitted with the

BRIDGEPORT OIL TRANSFORMER

operate successfully on **Kerosene.**

Look for us at New York Motor Boat Show.

Send for free catalog "B"

THE BRIDGEPORT MOTOR CO., Inc.

BRIDGEPORT, CONN. U. S. A

A LITTLE TIMELY ADVICE

IF your pleasure next summer depends on your choice of a motor for that new boat, why not play safe and install the new 25 H.P., 4-cycle, En-bloc "ERD" Unit Marine Power Plant, and insure yourself against motor trouble?

Just the right size to prove most efficient and economical in the average boat, including small cruisers, and controls like a high grade automobile motor.

Here, however, the similarity with the automobile motor ends. PLEASE NOTE that this machine was strictly designed to stand the gaff in your boat—to give you perfect service at all times—to run with the throttle wide open one hour or one hundred hours without damage to motor.

To accomplish this result successfully, it is important that the exhaust manifold is thoroughly water-cooled as well as the cylinder walls. Without this water-jacketed exhaust manifold, a motor placed under a hood would be a very unsafe proposition in any boat.

We build this Motor in two types, Aluminum High Speed, weight 450 lbs., and Standard Iron, weight 640 lbs.

Our prices on these machines are very low indeed, when you compare them with the standard of quality you are getting.

Supposing you write us now for that interesting little descriptive catalog of this new "ERD" engine and thereby confer a favor on both of us.

The Erd Motor Company has built SUCCESSFUL GASOLINE ENGINES for Sixteen years. We just mention this to prove to you that this new "ERD" motor is not an experiment, and that it is well worth your consideration.

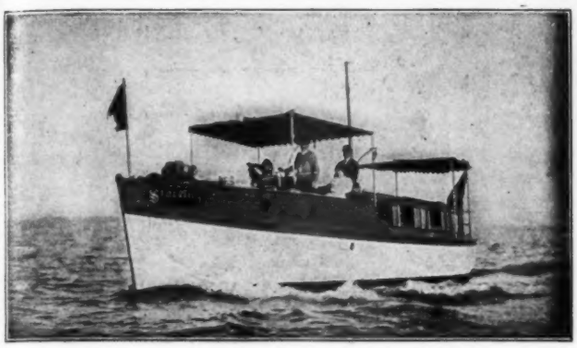
By all means let us hear from you, and give us a chance to give you the facts about this motor.

Sincerely yours,

Erd Motor Company, Saginaw, Mich., U. S. A.

Look for us at the New York and Chicago Motor Boat Show

Henry Morgan & Co., Ltd., Montreal, Que., Eastern Canadian Distributers.
Albert E. Eldredge Corporation, New York City, Eastern Distributers.
Gas Power & Supply Co., Portland, Ore., Western Distributers.



LET US SHOW YOU THE

1914 DESIGNS

WRITE TODAY FOR

CATALOG No. 12 OF SEA-GOING CRUISERS, DAY CRUISERS, TUGS AND COMMERCIAL CRAFT.

CATALOG No. 14 OF ROW BOATS, CANOES, HUNTING BOATS, DINGHYS AND SMALL CRAFT.

CATALOG No. 16 OF FAMILY MOTOR BOATS, SPEED BOATS, SHALLOW DRAFT BOATS, RUNABOUTS, ETC.

YEARS OF PRACTICAL EXPERIENCE IN BOAT BUILDING ENABLES US TO GIVE YOU THE VERY **BEST IN WORKMANSHIP—MATERIAL and FINISH** AT THE MINIMUM COST.

WATCH THE PERFORMANCE OF ANY RACINE, WISCONSIN, QUALITY—CRAFT.

WRITE US TO-DAY.

RACINE BOAT COMPANY

CHICAGO SHOW-ROOM
1508 MICHIGAN AVE.

1615 RACINE STREET
RACINE, WISCONSIN, U. S. A.

AMERICAN MARINE MOTORS

"Americanize Your Boat"

"AMERICANIZED" launches are conspicuous everywhere for the ever-ready, continuous running qualities of their power plants. Their great simplicity, correct design and careful construction make it practically impossible for AMERICAN motors to give anything but absolute satisfaction and efficient, reliable service.

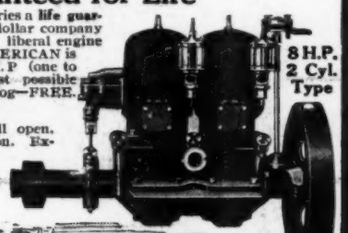
All parts of American Engines are carefully made of the finest materials and machined to fit perfectly. All working parts are ground to a mirror finish and to within one-thousandth of an inch in size. Every part is rigidly inspected and each engine carefully tested under its own power before leaving our plant.

Burns Kerosene and Other Fuels

Our new Kerosene Carburetor enables you to use **Kerosene**, the cheapest kind of marine engine fuel You can also use gasoline, benzine, petrol, distillate, alcohol or naphtha without change of equipment. Kerosene Carburetor is furnished, at small additional cost, with any AMERICAN motor.

Guaranteed for Life

Every AMERICAN motor carries a **life guarantee** backed by a half-million dollar company—it is the strongest and most liberal engine guarantee in the world. The AMERICAN is made in all sizes from 2 to 30 H. P (one to four cylinders)—sold at lowest possible prices. Write for descriptive catalog—FREE.



Agents Wanted

Some valuable territory still open. Write for our liberal proposition. Exclusive rights given.

American Engine Co.,
410 Boston Street,
DETROIT, MICHIGAN

ROBERTS

The Motors That Never Backfire

"SWEET 16"—4-P 40 H. P. 36.73 M. P. H.

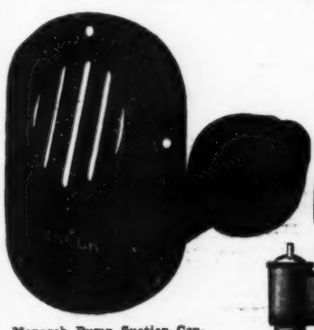
THE motor in "Sweet 16" is 5 years old, and has been in use every season. Champion of Puget Sound, she is the fastest boat for her power in the world. We make twelve sizes of motors, from 3 to 125 horsepower, for boats of all kinds. We build the lightest marine motors made for their power.

Write for Catalog Today

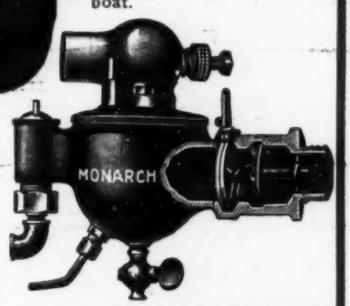
THE ROBERTS MOTOR COMPANY
1501 COLUMBUS AVENUE, SANDUSKY, O., U. S. A.

IF YOU REALLY

desire to get more power out of your engines equip them with Monarch Auxiliary Air Valves and Monarch Special Carbureters. A Monarch Pump Suction Connection and Strainer may save your engine or boat.

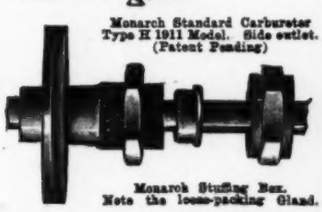


Monarch Pump Suction Connection with Strainer.



Monarch Standard Carbureter Type H 1911 Model. Side outlet. (Patent Pending)

Monarch Auxiliary Air Valve. Will Increase the power of your two-cycle engine.



Monarch Stuffing Box. Note the loose-packing Gland.

Monarch Goods are Guaranteed not for 30 days, but until they are worn out. Unless Vertical Carbureters are specified, all Carbureters are shipped Horizontal Pattern. Other Specialties offered from time to time. Full information for the asking.

MONARCH VALVE CO., 112 Front St., Brooklyn, N.Y., U.S.A.

Member { National Association of Boat and Engine Builders / Marine Supplies Association of America

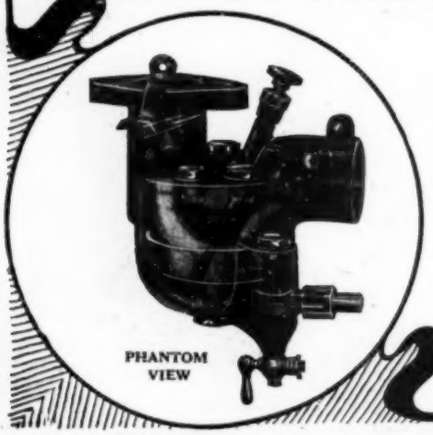
KINGSTON CARBURETOR

HORIZONTAL TYPE

A Wonderful Improvement In Power, Economy and Smooth Running

You will positively find it hard to believe that any one thing could make so much difference in the operation of your engine as the new Model "Y" Kingston Carburetor will do for it. You'll find that the old engine runs like a new one, has more power and speed, starts easier and consumes less fuel than ever.

The Kingston Model "Y" is designed especially for the present low grade gasoline. It gives the same results that ordinary carburetors will give only with the very highest test fuel. Besides this, it is essentially a marine carburetor, with features adapted particularly for marine work. Our Floating Ball air valve and Single Adjustment have made it the simplest and most trouble-proof carburetor on the market.



PHANTOM VIEW

Don't Wait Until You Get a New Engine

Get the benefit of this wonderful improvement *now*—on your present engine. It is the used engines which show up the Kingston Model "Y" to best advantage, the engines which have lost their original perfection of adjustment.

Accept Our 30 Day Free Trial Offer at Once

We guarantee you satisfaction, and we will take all the risk of proving it—on your own engine, under the actual operating conditions to be met. Could anything be fairer than this offer?

Write Today for Full Information, Free Trial Offer and Guarantee

BYRNE-KINGSTON & CO., Kokomo, Indiana

New York Office, 1733 Broadway. Chicago Office, 1430 Michigan Ave.
Seattle, 718-20 Central Bldg. Detroit Office, 650 Woodward Ave.
Los Angeles, 332 Picco St.

RELIANCE-ROCHESTER
MARINE
STEERING GEARS

A wheel for every type of boat

Endorsed by the world's foremost designers and builders. For racing boats, runabouts, cruisers and work boats. We are the exclusive manufacturers of the scored drum type of steering control.

"Baby"
Reliance-Rochester
"A Perfect Little One"

Built to meet the demand for a "Reliance-Rochester" of smaller dimensions and of the same high grade material and workmanship.

Write for literature

W. S. HALL COMPANY
1223 Cortland Street, Rochester, N. Y.

A Detroit Oiler is a *profitable investment*

A Detroit Force Feed Oiler insures you against wasted oil and a damaged engine.

It guarantees that your engine won't be laid up by the many troubles that come from faulty lubrication.

And it pays big dividends in freedom from bother and delay.

There is a Detroit Force Feed Oiler for every engine. Made in all sizes and all numbers of feeds with pulley, ratchet and gear drive.

A Detroit Oiler remembers for you

The Detroit Oiler starts and stops with the engine. It automatically changes its rate of feed as the engine speed changes.

You never have to bother with a Detroit because it remembers for you.

Once adjusted, it never has to be regulated. It gives you efficient, automatic, dependable, trouble-proof lubrication that never requires any attention at all.

Write today for catalog P64 and full information stating in what kind of engine you are interested.

On sale in Canada by the Canadian Fairbanks Morse Co.

DETROIT LUBRICATOR COMPANY.
DETROIT, U. S. A.

Largest Manufacturers of Lubricating Devices in the World

Steer for Carpenter's

for your Marine Supplies and Motor Boat Accessories

Concentrate Your Purchases

with a modern, progressive supply house, centrally located, doing business with a big, clean stock in an up-to-date plant.

GEO·B·CARPENTER & CO.

430-440 Wells Street, Chicago

"The Great Central Market"

Manufacturers and Jobbers of Marine Supplies Motor Boat Fittings, Boat Tops, Racine Sails, etc.

OUR NEW 1914 CATALOG

will be ready about February 1st. Send in your application now, with 20c. in stamps to cover postage.

We refund this on your first order.

This new book will be the most important Marine Supply Catalog in the trade.

Look for us at the Chicago Motor Boat Show.

Baldridge Reverse Gear

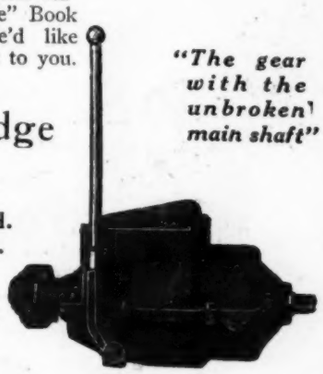
Questions of Mr. Careful Gear Buyer No. 4

"What Will It Cost to Run?"

An all important question to any gear buyer —because costly upkeep and dissatisfaction go hand in hand.

The same features that make the "Baldridge" Gear so efficient and easy to care for also make its upkeep cost lower than any gear we know of. The unbroken main shaft—low capacity rating—splash lubrication—housing—few moving parts—compactness — tested materials —are just a few of these features. The "Baldridge" Book tells of others. We'd like mighty well to send it to you.

"The gear with the unbroken main shaft"



The Baldridge Gear Co.

678 W. Grand Blvd.
DETROIT, MICH.

Handled in Canada by The Canadian Fairbanks-Morse Co., Ltd.

DONT BLAME YOUR MOTOR. GET A

BRYANT & BERRY PROPELLER

SPEED GUARANTEED

We Guarantee 1 to 3 Miles Per Hour

To Increase the Speed of Your Boat

This is the guarantee we have been making for the past five years, the guarantee under which we have sold thousands of B. & B. propellers. This is your protection and insurance of satisfaction when you buy a B. & B. wheel. You don't have to depend on argument or unfounded claims.

B. & B. propellers give you the highest degree of speed and power your boat and engine are capable of. Their efficiency is as near perfection as it is possible to attain. They reduce the percentage of slip and produce the maximum propelling force for the horsepower used.

The materials and workmanship used in B. & B. wheels are equal in superiority to the design. We use a special bronze as strong as steel. The accuracy and finish are beyond criticism. And in spite of all this, our prices are lower than for any other make of wheel.

When you buy a propeller, get a genuine B. & B.—don't accept a substitute or imitation. Look for the name "Bryant & Berry" stamped on the hub. Certain peculiarities of design make it impossible for copies of our wheels to equal the originals in efficiency.

BRYANT & BERRY COMPANY

28 WEST ATWATER ST. DETROIT, MICH.

Washington and Alaska Distributor, S. V. B. Miller, Seattle, Wash.
Canadian Fairbanks-Morse Co., Canadian Sales Agents.

E. J. WILLIS CO. - - - New York Agents

NOW IS THE TIME TO BUILD YOUR BOAT

Make winter evenings add to summer pleasure. Hundreds of men and boys are now building their Brooks boats. Why don't YOU start yours? We send you all parts shaped and fitted, ready to put together, with the nails, screws and hardware to complete the boat. You can handle a hammer, saw and screw-driver, consequently you can easily put these parts into a staunch, beautiful power boat, sail boat, row boat, or canoe.

THE BROOKS SYSTEM

Makes It Easy and Saves Two-thirds Boat Builder's Price

Every step is made clear with our instructions. We guarantee satisfaction or we return your money. If you prefer, get the full-sized patterns only, with full instructions at from $2 to $20.

FREE—Brooks Boat Book, full of illustrations. Scores of models and sizes from the smallest duck boat to big cruisers. Write today for this book. Address

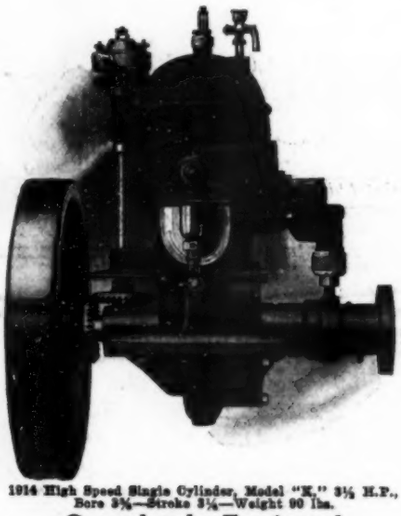
BROOKS MANUFACTURING CO.

6301 Rust Avenue, Saginaw, Mich.

ONLY $33.00 for the Knockdown Frame of 23 ft. motor boat, including full-sized patterns and illustrated instructions to finish—speed 9½ to 14 miles an hour—12 passengers. Write for *free boat book.*

THE FLIGHT OF

Matchless in Price and Efficiency. The Lighter and Better than Two Cycle Engines Us No Substitution Necessary. Made in High Speed,



1914 High Speed Single Cylinder, Model "K," 3½ H.P., Bore 3⅝—Stroke 3¼—Weight 90 lbs.

Completely Equipped

with Schebler carbureter, "Black Eagle" spark plug, roller contact timer, bronze plunger pump with self-contained check valves, priming cup, grease cups, ball thrust bearings, flange coupling, "Eagle" water-cooled exhaust silencer, wrenches, screw driver, can of cylinder oil, can of grease, two oil cans, lag screws, and instruction book.

Price, $50.00

SECURITY

Back of all "Eagle" Engines there is a *greater financial guarantee* than on *all other makes of two-cycle engines combined.*

Pause a moment and consider the importance of the above statement. When an engine loses its maker, through failure or otherwise, its market value immediately falls 50 to 70 per cent. The engine is instantly discredited, commanding neither price nor respect. Nobody wants it, least of all the owner.

After you have put your faith and money into an engine, then is when it needs a maker back of it with the financial strength and moral determination to make good every promise that his advertising or his salesmen held out to you *before you bought.*

"Eagle" Engines have been manufactured under the same general management for fourteen consecutive years. An owner can secure promptly parts for any style of "Eagle" Engines sold during this period. No user of an "Eagle" Engine was ever obliged to discard it because he was unable to secure some needed part.

Considering the many failures among engine builders and the fact that, with a few exceptions, none have survived over two to three years at the most, it seems unnecessary to point to our long and successful business career and suggest to you the importance of our position as factors in the Manufacture of Marine Engines.

THE STAN

Torrington,

1914 EAGLES

Leader in Quality, Design and Variety. ually Offered. An Engine for Every Purpose. Medium Speed and Extra Heavy Duty Models.

We realize only too well that the highest honor paid "Eagle" Engines lies in what their owners expect of them. They have expected much in the past: they will receive more in 1914. On and on goes the work of improvement. There are no lessening efforts on account of our past achievements. Our engineering department is ever zealous of "Eagle" superiority, and 1914 will find them as individual in design and construction as in the past.

Following the law of supply and demand, and the fact that the Engine business is largely concentrating to the live and practical manufacturers, you are enabled to buy better engines at a more reasonable price today than ever before.

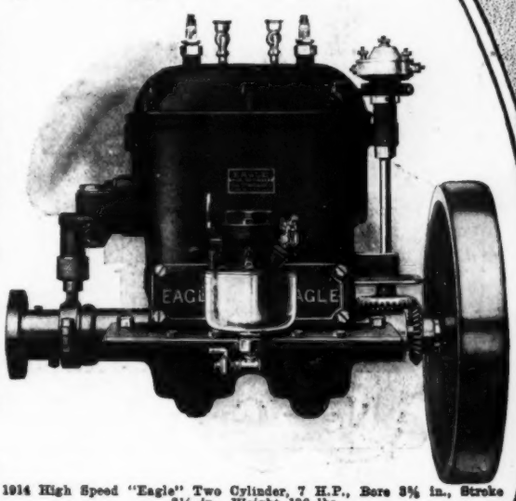
"Eagle" Engines will be shown in large variety at the National Boat and Engine Shows that will be held in New York City and Chicago the early part of 1914.

Boat Builders who use Engines in quantities, and who build stock boats will find our 1914 proposition of much interest and a line will bring you our representative promptly.

It will be to your interest to investigate what we have to offer in the way of Engines and prices. Just stop and consider what it means *to you as a dealer, boat builder or owner* to have back of you one of the *greatest, and most up-to-date business organizations in America.*

Our great investment enables us to ship promptly Engines *when you want them, each in perfect running order, thoroughly tested under load and ready for immediate use.*

Catalogue mailed free upon request.



1914 High Speed "Eagle" Two Cylinder, 7 H.P., Bore 3½ in., Stroke 3¼ in., Weight 136 lbs.

Completely Equipped

with Schebler carbureter, "Black Eagle" spark plugs, roller contact-timer, bronze plunger pump with self-contained check valves, priming cup, grease cups, ball thrust bearings, flange coupling, Eagle water-cooled exhaust silencer, wrenches, screw driver, can of cylinder oil, can of grease, two oil cans, lag screws and instruction book.

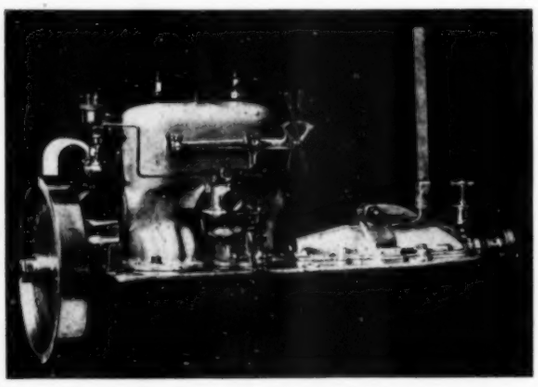
Price, $95.00

DARD CO.
Conn., U.S.A.

GRAY MOTORS FOR 1914

Two New Models

In addition to our regular line of 4½, 6, 9 and 12 H. P. sizes Model "R" Motors—Model "U" in 3 and 6 H. P. sizes, and Model "T" in 7, 8, 12, 14, 16, 21, 24 and 36 H. P. sizes, we have brought out two striking new models for 1914.



The "Baby Grand"

This 6 H. P. engine is without exception the most complete and best finished marine engine of its size ever produced. It is a de-luxe edition of a two-cycle Model "U" that for two years has been one of the most popular two-cycle engines ever manufactured.

An engine that will develop a good 8 to 9 H. P.

A unit power plant with aluminum base—enclosed clutch—high tension magneto—convenient control. All fittings are nickel plated; cylinders French enamel, a beautiful soft gray.

Designed for service in the highest class yacht tenders—finished to harmonize with the fittings of finest boats built.

Every possible detail that makes for convenience and easy handling has been embodied.

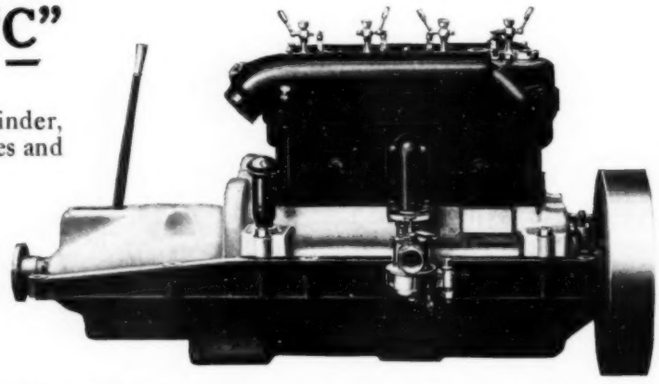
Actual photo of the engine on request.

The New Gray Model "C"

This model is made in two sizes.

A four-cylinder, 20-30 H. P. and a six-cylinder, 35-50 H. P. They are medium-duty machines and are designed especially for service in classy runabouts, cruisers, yachts and work boats.

Complete Unit Plants with Paragon Clutch and High Tension Magneto—designed to take either electric or air starter.

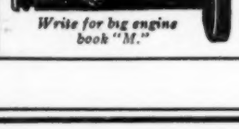


GRAY MOTORS FOR BOATS—all sizes up to 35-50 H. P.

3 H. P., guaranteed to develop 4 H. P. Complete outfit **$55**

6 H. P., guaranteed to develop 7 H. P. Complete outfit . **$89.50**

12 H. P. A powerful two cylinder motor that will develop 13 to 16 H. P. Price for complete outfit **$178**



MODEL "T"
Kerosene or Gasoline

Made in 1, 2 and 3 cylinders, 7 to 36 H. P. Price with complete outfit. **$115** and up.

Write for big engine book "M."

Boat Builders Write for details of our special 1914 co-operative service and complete details of the two new models and special information of the complete Gray line.

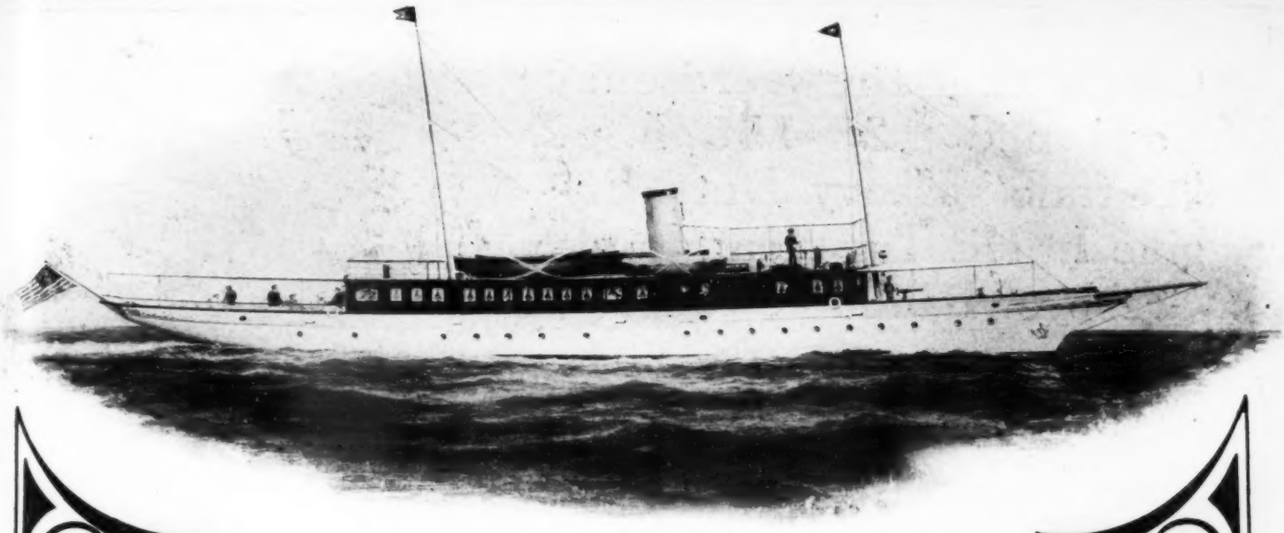
Three Valuable Books on Boats and Engines

Every prospective boat and engine owner should have copies of our Big Engine Book "M," our "Boat Builders Catalog" and "Book of Boats."

A great help in making the right selection—just ask for Engine Book "M" and the three books will be sent free.

Look for us at New York and Chicago Motor Boat Shows

GRAY MOTOR CO., 174 GRAY MOTOR BUILDING **Detroit, Mich.**



The World's Largest Power Yacht, now in course of construction at the Shipyard of Geo. Lawley & Son Corporation. Designed by Gielow & Orr and equipped with Two 200 H. P. Winton Engines

The World's Largest Power Yacht

is equipped with

WINTON
MARINE ENGINES

The Owner had for his selection the marine engines of the world---and he chose Winton's because, after thorough investigation he found them to be the most modern, so far superior in every way, as to permit of no hesitation in making his choice.

Naval Architects, Yacht Builders, and owners of fine yachts proclaim Winton Engines the aristocrat of all large power plants.

As evidence of this fact there are at the present time in commission, and in process of construction, Winton powered yachts of 154 ft., 140 ft., 125 ft., 110 ft., 103 ft., and 100 ft. in over all dimensions, as also a number of smaller craft.

We are trying to show you that the Winton Engine is recognized as a real engineering achievement, but nothing we can say will impress you half as much as seeing a Winton in operation. Therefore, we shall be pleased to arrange a demonstration.

Our sizes of engines are suitable for power yachts of 60 to 200 ft. in length.

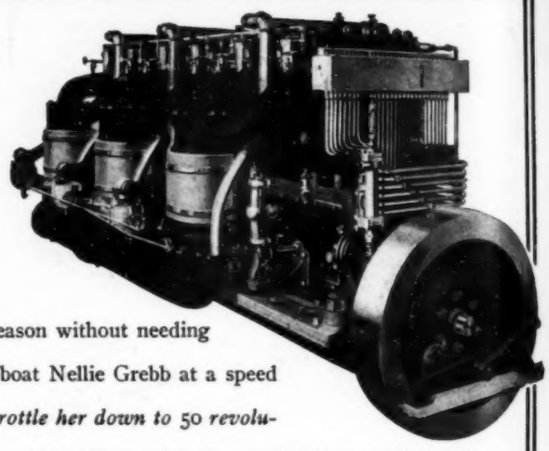
The Winton Book will be sent on request.

The Winton Gas Engine & Mfg. Co.

2116 West 106th Street CLEVELAND, OHIO

608039

Concerning the Kerosene-Equipped 125-150 h. p. "Buffalo" Heavy Duty Engine In His Tug Boat, Louis Grebb of Baltimore Says:—



"This engine has run over 6000 miles on Chesapeake Bay this season without needing any engine repairs.

"The 125-150 H. P. 'Buffalo' Heavy Duty drives the 50-ft. tug boat Nellie Grebb at a speed of 12 miles per hour, in spite of her 11-ft. beam and 7½-ft. draft.

"The boat can pull two loaded scows, 300 tons each, and *I can throttle her down to 50 revolutions per minute on kerosene.*

"I have been running the boat daily since the engine was installed, and she is running fine, and giving perfect satisfaction.

"The fuel consumption is about 10 gallons per hour."

Date_____

Buffalo Gasolene Motor Co.:

Send me information concerning the best power plant for a boat of the type before which I have marked "X" and of the size here stated:

	Auto Boat		Racing Boat
	Auxiliary		Runabout
	Cruiser		Str. Paddle Wheel
	Fish Tug		Tug Boat
	Open Launch		Work Boat

Length_____ Beam_____

Draft_____ Speed desired_____

Name _____

Address_____

"The Engine of Constant Service"

"Buffalo" engines are built in all sizes from 3 to 150 H. P., slow speed, medium speed and high speed.

They are powering work boats, speed boats, launches and cruisers of all kinds.

They operate on either gasolene or kerosene.

Shall we send you the "Buffalo Book"?

Just fill out the coupon.

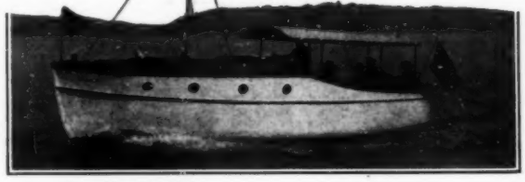
BUFFALO GASOLENE MOTOR CO.

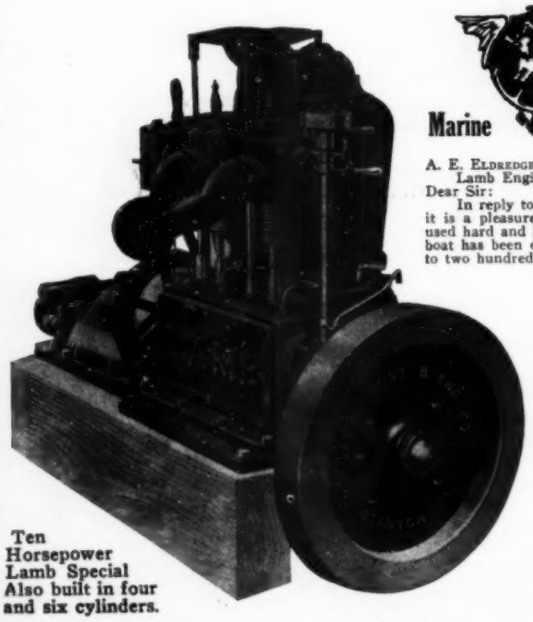
1274-1286 Niagara Street **BUFFALO, N. Y.**

"Entire Satisfaction Under All Conditions"

This expression covers the most thorough recommendation of a marine engine possible to give. It is an expression characteristic of Lamb owners because they invariably receive the service which warrants such a sweeping declaration. Whether it is a ten horsepower cruiser model on a big seventy horsepower heavy duty motor the quality of design, materials, workmanship and service are the same.

"VIRGINIA"
Mr. H. M. Betts, owner.
See Mr. Betts' letter below.





Ten Horsepower Lamb Special Also built in four and six cylinders.

Marine Engines

H. M. BETTS
52 Broadway, New York

Sept. 25th, 1913.

A. E. ELDREDGE, ESQ.,
Lamb Engine Co., New York.

Dear Sir:

In reply to your letter of September 15th, asking about the 10 H. P. Special Lamb in the "VIRGINIA," it is a pleasure to tell you that the engine has given entire satisfaction undr all conditions. It has been used hard and has been run as long as twenty-eight hours at a stretch, and has never failed on a run. The boat has been entered in nine open races under A. P. B. A. rules this season, varying in length from ten to two hundred and ten miles, and has finished first or second in each.

Yours very truly,
(Signed) H. M. BETTS.

VIRGINIA'S RECORD FOR 1913

June	7—Columbia Yacht Club Regatta	Finished Second
June	15—Hudson River Motor Boat Club, around Manhattan Island	Finished First
July	4—Tappan Zee Yacht Club Regatta	Finished Second
July	12-13—Colonial Y. C., Cornfield Lightship and return (210 miles)	Finished Second
July	19—N. Y. Motor Boat Club Regatta	Finished Second
Aug.	9—Colonial Yacht Club, Poughkeepsie and return (132 miles)	Finished First
Aug.	16—Harlem Yacht Club, Stratford Shoal and return (70 miles)	Finished First
Aug.	24—Hudson River Motor Boat Club, Rockland Light Race	Finished First
Sept.	20—Shattemuc Yacht Club Regatta	Finished Second

Write today for catalog of the entire line of Lamb Four Cycle Marine Engine. High Speed, Medium Duty and Heavy Duty types from 10 to 60-70 H. P. Two to Six Cylinders.

Manufactured by the Lamb Engine Co., Clinton, Iowa

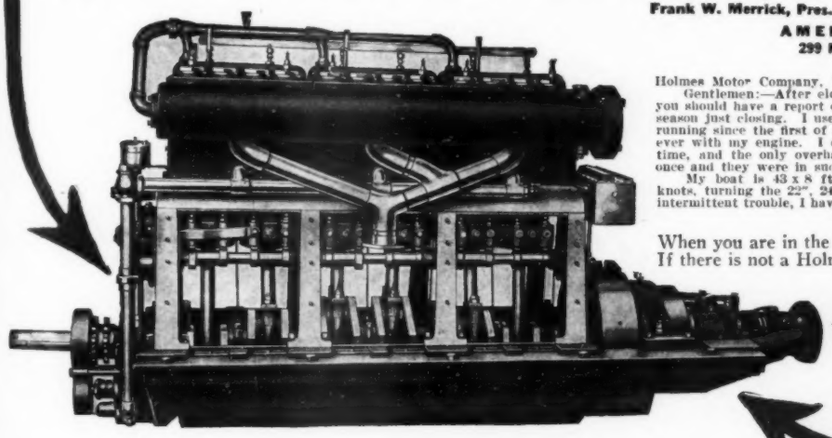
Lamb Engine Company of New York

Eastern and Foreign Distributors **30 CHURCH STREET, NEW YORK CITY**

HOLMES MOTORS

You don't buy a marine motor every day. When you do, you want a good one. You ought to know about the Holmes Motor.

Reliability, accessibility, durability, economy of operation and maintenance are Holmes characteristics. No danger to your boat through back-firing. There is more to be said in favor of the Holmes, of course, but we think it better taste to leave the superlatives to Holmes Owners. Read the following:



Frank W. Merrick, Pres. **Clarence S. Luitweiler, Treas.**

AMERICAN STAY COMPANY
299 Marginal St., East Boston, Mass.

October 10, 1913.

Holmes Motor Company, West Mystic, Conn.

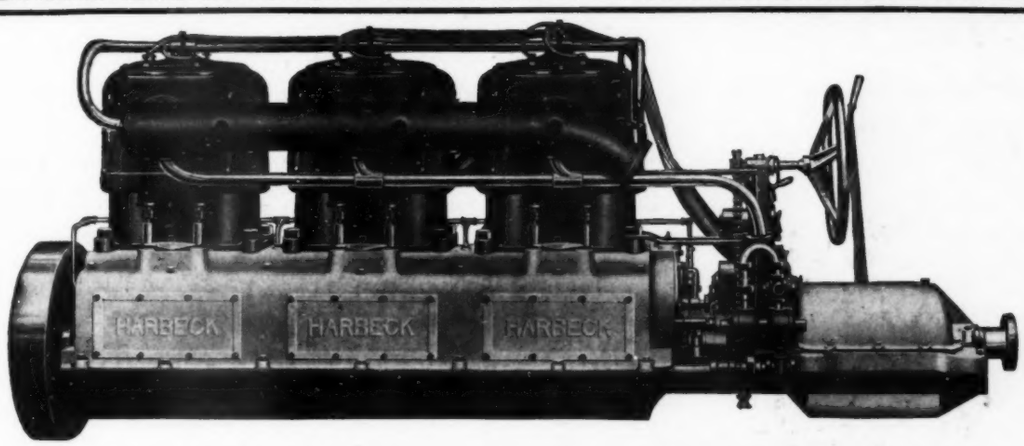
Gentlemen:—After eleven years of experience with marine motors, I feel that you should have a report on the performance of your engine in my boat during the season just closing. I use the boat daily and have missed not more than six days' running since the first of June. During all that time I have had no trouble whatever with my engine. I do not think she has missed an explosion during all that time, and the only overhauling I have done has been to look at the spark plugs once and they were in such perfect condition that I have forgotten them.

My boat is 43 x 8 ft., 11 tons net, and the 25 h.p. engine drives her nine knots, turning the 22", 24 pitch Hyde wheel 720 revolutions. After many years of intermittent trouble, I have at last found an engine which I can forget is in the boat.

Yours very truly, F. W. MERRICK.

When you are in the market, let us talk with you.
If there is not a Holmes agent in your territory, we want one.

The Holmes Motor Company, Inc.
West Mystic, Conn., U. S. A.



LOEW-VICTOR MODEL 32
FOR THE HIGH SPEED CRUISER

OUR Model 32, six cylinders, or the Model 31, four cylinders, is the ideal power plant, because the models, though designed for hard, continuous duty, are light in weight, and have a high normal rotative speed. All working parts are easily accessible. Accessories are most conveniently arranged. Clutch is self-adjusting and trouble-proof.

Six Cylinder, Model 32—weight 3100 lbs.—130 H. P. at 650 R. P. M.
Four Cylinder, Model 31—weight 2350 lbs.—90 H. P. at 650 R. P. M.

LOEW-VICTOR ENGINE COMPANY, C Street, CHICAGO, U. S. A.

WHAT THE TEST OF TIME TELLS ABOUT

Sterling

THE ENGINE of REFINEMENT

For the finest boats that float

May the Coming Year Bring You That Ideal Combination of Boating Pleasures, Satisfaction and Recreation Which is the Right of Every Sterling Engine Owner

Sterling Engines are a factor in Motor Boating which invariably ensure that maximum degree of pleasure and satisfaction every owner is striving to find. They have been used in the finest boats now afloat, favored by the best builders and architects, and chosen by the best informed boat owners. For the prospective buyer there is a long standing record of success which entirely eliminates the element of chance in buying a Sterling.

The test of time has shown Sterling Engines in the most favorable light. They are installed in every type and size of motor boat, for both pleasure and working service, in all parts of the world. There is no conceivable boating condition which has not been met and mastered by a Sterling Engine.

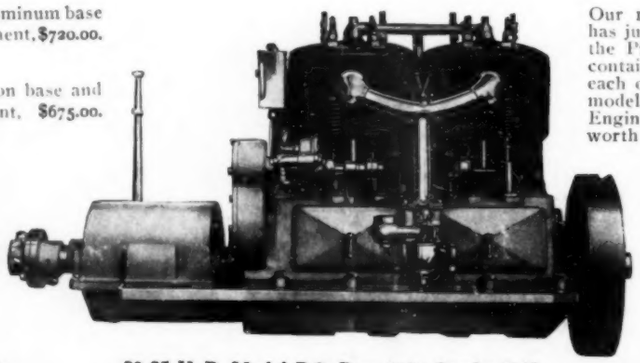
For the coming year, make this New Year resolution. Resolve to have more pleasure from your boat, or if you have a commercial boat, resolve to have greater reliability, efficiency and economy, meaning more profit for you. There is one certain way of attaining these ends—install a Sterling Engine now. Remember there is a model exactly adapted to each power requirement.

Let Us Send You Our Beautifully Illustrated Catalog free. Write for it Today

STERLING ENGINE COMPANY, 1254 Niagara St., Buffalo, N. Y.

Net price with aluminum base and regular equipment, $720.00. Weight, 620 lbs.

Net price with iron base and regular equipment, $675.00. Weight, 840 lbs.



20-35 H. P. Model B.2, Bore 4⅜", Stroke 5½", Medium Duty and Speed Engine

Our 1914 Advance Catalog has just been received from the Printers. This booklet contains an illustration of each of the eleven different models of the STERLING Engine. Write for it—it's worth while.

THE STERLING ENGINE CO.,
1254 *Niagara St.*
Buffalo, N. Y.

Please mail catalog to

.....

Address .....

.....

QUADRI-COLOR COMPANY, NEW YORK

レ
ス
ト